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A STUDY OF THE RELATION OF FAMILY INCOME AND OTHER ECONOMIC FACTORS TO PELLAGRA INCIDENCE IN SEVEN COTTON-MILL VILLAGES OF SOUTH CAROLINA IN 1916.¹

By JOSEPH GOLDBERGER, Surgeon; G. A. WHEELER, Passed Assistant Surgeon; and EDGAR SYDENSTRICKER, Statistician, United States Public Health Service.

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In the spring of 1916 we began a study of the relation of various factors to pellagra incidence in certain representative textile-mill communities of South Carolina. On a varying scale the study was continued through 1917 and 1918. The results of the first year's (1916) study with respect to diet,² to age, sex, occupation, disabling sickness,³ and to sanitation⁴ have already been reported. At the present time we wish to record the results of the part of the study dealing with the relation of conditions of an economic nature to the incidence of the disease.

I. REVIEW OF LITERATURE.

A close association of pellagra with poverty has been repeatedly remarked upon since the time of the first recognition of the disease. In the earliest account, Casal (1870, p. 93), discussing the diet of those

¹ From Field Investigations of Pellagra. Submitted for publication Aug. 31, 1920.

² Goldberger, Wheeler, and Sydenstricker, 1918 and 1920a.

³ Goldberger, Wheeler, and Sydenstricker, 1920b; Sydenstricker, Wheeler, and Goldberger, 1919.

⁴ Goldberger, Wheeler, and Sydenstricker, 1920c.

persons attacked by the disease, remarks that "they eat meat very rarely since most pellagrins are poor field laborers, and this circumstance does not permit them to eat meat daily nor even from time to time." Continuing, he says: "Their only beverage is water. Their clothes, beds, habitations, etc., are strictly in keeping with their extreme poverty." Further along, discussing the treatment of the disease, Casal states that "milk, thanks to the butter it contains, is certainly capable of supplying the nutritive lack of the other foods; they use it but rarely without having first removed the butter, since these poor people sell the butter in order that they may be able to buy other necessities, thus using in their own diet what remains in the milk after having thus treated it."

Much more definite and direct is Strambio (1796) who states that "thus much is certain, that pellagra is most at home where poverty and misery reign and increases as they increase."

Very interesting and significant is Marzari's observation.⁵ "I have several times observed," he states, "that if a villager falls into poverty, as happens so often as a result of a storm, drought, or other calamity, pellagra does not fail to crown his misfortune and put an end to his miserable existence."

Holland (1820), in introducing his discussion of the cause and symptoms of pellagra in a paper read in 1817, based on observations of his own and on information secured from Italian physicians in the course of a journey to Italy, remarks: "The pellagra is a malady confined almost exclusively to the lower classes of the people, and chiefly to the peasants and those occupied in the labors of agriculture." He repeats this two or three times in other connections. In his discussion of the etiology of the disease (p. 322) we find the following highly suggestive statements: "Though I have spoken of Lombardy as one of the most fertile portions of Europe, yet to those who consider the little certain relation between mere productiveness of soil and the prosperity or comforts of the population dwelling upon it, it will not appear very extraordinary that the peasants of this district should be subject to various physical privations unknown to the people of countries which are much less favored by nature. The fact unquestionably is, whatever be our speculations as to the cause, that the peasants of Lombardy do for the most part live in much wretchedness, both as regards the quantity and quality of their diet and the other various comforts of life. It further seems probable, if not certain, that this evil has been progressively augmenting within the last 50 years; partly, perhaps, an effect of the wars which have so often devastated the country by marches and military contributions; partly a consequence of the frequent changes of political state; together with the insecurity, the variable system of government, and

⁵ Cited by Russell, 1845, p. 167.

the heavy taxes and imposts attending such changes. To these causes may be added a decaying state of commerce and a faulty system of arrangement between landlords and the cultivators of the soil, all tending to depress agriculture and to reduce the peasantry at large to a state of much misery and privation." Continuing this discussion, Holland remarks further (p. 333): "Animal food rarely forms a part of their diet, and although living on a soil which produces wine their poverty almost precludes the use of it, even when sickness and debility render it most needful. The same condition of poverty is evident in their clothing, in their habitations, and in the want of all the minor necessities and comforts of life. The immediate effect of these privations is obvious in the aspect of squalid wretchedness and emaciation which forms so striking a spectacle at the present time throughout the greater part of Lombardy. I say particularly *at the present time*,⁶ because whatever may have been the progress of misery among the peasants of this country during the last half century it appears to have increased in a tenfold ratio during the last two years, the effect of bad harvests added to the preceding wars and political changes which have distressed this part of Italy."

Hameau (1829), in the first recorded observations of pellagra in France, reported that "this disease attacks individuals of both sexes and all ages, but I have not yet seen it in any but the poor and uncleanly who subsist on coarse food."

Lalesque (1846), in his account of pellagra of the Landes, cites a number of instances illustrating the conditions of misery under which pellagra occurred, finally exclaiming (p. 421): "These are the individuals attacked by pellagra, for it attaches itself to poverty as the shadow to the body."

In a discussion of pellagra in Gorz-Gradisca, Berger (1890) very significantly observes: "The appearance during the last decennium of diseases of the vine, the reduction in value of the product of the soil because of foreign competition, crop failures, increase in taxes, increasing living costs, all operated to undermine economic conditions, particularly of the poorer country folk, and thus prepared favorable conditions for the spread of the disease."

Discussing the therapy and prophylaxis of pellagra in Bessarabia, V. Rosen (1894) bewails the attendant difficulties "in that, on the one hand, the alimentation with cornmeal porridge is a deeply rooted national custom, and, on the other, that the disease attacks the poorest class of the population; 'N'am vaca, n'am lapte a casa' ('I have no cow and no milk in the house') is uniformly the reply of the patient to questions in relation to this subject," and Sofer (1909, p. 219), discussing the economic status of pellagrins (in Austria), remarks that "89.9 per cent haven't even a cow."

⁶Italics in original.

The extremely unfavorable economic conditions of those subject to pellagra (in Austria-Hungary, at least), is further strikingly suggested by the character of some of the recommendations for its control. Thus Von Probizer (1899, p. 141) urged, as a necessary measure, "pecuniary aid by the Government in view of the deplorable condition of the peasantry in the affected localities."

V. Babes (1903), writing on pellagra in Roumania, remarks (p. 1187) that "practically all pellagrins are very poor;" and goes into some detail in describing the unfavorable economic condition of the Roumanian peasant, which leaves him in debt to the landowner and the tax collector.

In modern Spain we have Calmarza (1870) remarking (p. 66) that although he had seen cases in well-to-do individuals, the disease only exceptionally occurred in those of this class. He adds (p. 67) also that in his experience, unlike the reported observations of others (Roussel, 1866, p. 431), pellagra is quite common in beggars. In discussing the etiological rôle of widowhood, this keen observer expresses the opinion (p. 68) that this plays a part only in proportion as it tends to bring about a depression in economic well being and a consequent insufficient alimentation. Huertas (1903) describes the disease as occurring among the most miserable class of the population of Madrid, who live on the food picked from the city's garbage.

In Egypt Sandwith (1903) found the disease highly prevalent among the poorer peasants of Lower Egypt. "In one village," he reports, "where the inhabitants are especially well to do because they get regular pay throughout the year from the Domains administration, there were only 15 per cent of pellagrous men, while among the men of the village, which has the reputation of being the poorest, the percentage rose as high as 62."

Gaumer (1910), discussing pellagra in Yucatan, states that the disease did not become epidemic in that State until 1884, two years after a destructive invasion by locusts or grasshoppers. "Among the better classes the disease seldom made its appearance. * * * It was the middle and lower classes who, from reduced circumstances, were obliged to purchase the cheapest corn in the market that suffered most from the ravages of the disease."

"From 1891 to 1901 Yucatan produced sufficient corn for home consumption, and new cases of pellagra were no longer to be found,
* * *"

"From 1901 to 1907 the corn crops were almost total failures and corn was again imported in greater quantities than ever before * * *"

"Pellagra again became epidemic, but was not then confined to the middle and lower classes, as in the former invasion. The wealthy hemp owners, on account of the exorbitant prices paid for hemp,

found it was more profitable to import than to raise corn for home consumption, thus compelling even well-to-do people to consume the imported article," which was believed to have been spoiled in transport from the United States. "Pellagra then spread alike among the rich and poor, until by the close of 1907 about 10 per cent of the inhabitants were victims of the disease * * *."

In Barbadoes, B. W. I., the disease, according to Manning (1907), is "confined to the laboring classes and is most prevalent among those who are badly off or poverty stricken. It is very seldom found among the whites, but cases do occur among those in straightened circumstances." In the pioneer reports on pellagra in the United States such references as are made to the relation of economic status to the disease are of a very general character and appear for the most part to be echoes of European opinion. So far as we are aware credit for the first study of this relationship is due to Siler and Garrison (1913). This study was made in South Carolina in 1912 and relates to pellagrins alone. In recording their data relating to the economic conditions under which the patients lived, Siler and Garrison adopted five classes, namely, squalor, poverty, necessities, comfort, and affluence. Of the 277 cases so classified, the economic conditions were reported as poor (squalor, poverty, necessities) in 83 per cent, within the average (comfort) in 15 per cent, and well above the average (affluence) in 2 per cent.

Jobling and Petersen (1917) in their second year's study of the epidemiology of pellagra in Nashville, Tenn., "endeavored to make a most accurate study of the economic condition of pellagrous patients." "In order to do this," they state that their examiners "ascertained the average rentals for the entire city, the weekly income of the pellagrin when a wage earner, and the total income of the pellagrous family." From these data the amount of money available for each pellagrin per week was computed by dividing the total income by the number of individuals, children being accorded the same value as adults.

They found that 70 per cent of their white adult male pellagrins were wage earners, more than 60 per cent of whom earned \$10 or more per week. Of the white adult females, 22 per cent were wage earners, and of these, 56 per cent earned less than \$10 per week. Of the colored wage earners, 66 per cent of the males earned less than \$10 per week, while a similar per cent of the females earned under \$8 per week.

When the amount of money available for each pellagrin per week was estimated, Jobling and Petersen found that of the whites 56.5 per cent and of the colored 24 per cent had an available income of \$2.50 or more per week.

These workers also made an estimate of the economic status of the pellagrous class on the basis of rentals, which they considered a "fairly reliable basis" for this purpose. They found that of the whites 11 per cent and of the colored 16 per cent owned their own homes or were buying them on the installment plan. "The rentals paid by the balance were practically all under \$15 per month, only 3 per cent of the cases occurring in families paying more than this amount. Of the colored families few pay more than \$8 per month."

It will be observed that the study of Jobling and Petersen, like that of Siler and Garrison, concerns itself exclusively with the pellagrin. Neither study affords any basis for a comparison with the economic distribution of the general population so that neither these nor, so far as we are aware, any previous observations give us any means of measuring in a definite objective manner the degree of association between economic status and pellagra incidence. This deficiency we have endeavored to repair by the study that we shall now proceed to detail.

II. PLAN AND METHODS OF PRESENT STUDY.

LOCALITY.

The study was made in seven representative cotton-mill villages situated in the northwestern part of South Carolina.

POPULATION.

The villages were of about average size; none had over 800 or less than 500 inhabitants. Each constituted a distinct, more or less isolated community in close proximity to a cotton-cloth manufacturing plant and was composed practically exclusively of the mill employees and their families. The few Negro families present and living somewhat apart were not considered, so that our study deals with an exclusively white population, which, with hardly a single exception, was of Anglo-Saxon stock born in this country of American-born parents. Besides the Negroes, there were also excluded from this study the mill executives, store managers, clerks, and their households, so that we had left for study an exceptionally homogeneous group with respect to racial stock, occupation, and general standard of living, including dietary custom. An enumeration of the population was made in May and June in connection with the collection of our dietary and economic data, and totaled about 4,160 people, included in about 750 households.

PELLAGRA INCIDENCE.

The procedure adopted for determining the incidence of pellagra in this population has been described at length in a previous paper of this series.⁷

⁷ Goldberger, Wheeler, and Sydenstricker, 1920 a.

Briefly, in order to ascertain the incidence of the disease as completely as possible, the expedient of a systematic biweekly house-to-house search for cases was employed and practically exclusively depended on.

Only cases with a clearly defined, bilaterally symmetrical dermatitis were recorded as pellagra; cases with poorly defined eruptions, or those with more or less suggestive manifestations but without clearly marked eruption, were recorded at most as "suspects" and are excluded from present consideration.

Just as in our study of pellagra incidence in relation to diet, so here, in relating pellagra incidence to economic conditions, no distinction is made between first and recurrent attacks, but all active cases as above defined are considered. So-called inactive or quiescent cases, that is, individuals who had had the disease in a previous year but during 1916 presented no definite eruption or evidence sufficient to be classed as "suspects," are considered as nonpellagrous.

As a considerable proportion of the population of any village is of transient character,⁸ and as much of the pellagra occurs in this class,⁹ some assumption was necessary on the basis of which cases might be assigned to households and villages. Accordingly the rule was adopted that a case was to be charged to a household or village only if the affected individual had been a member of that household or had resided in the village not less than 30 days immediately preceding the beginning of the attack (as above defined).

SEASON.

It would seem reasonable to expect, if diet, economic status, or other factor has any influence in relation to the seasonal rise in incidence of the disease, that this influence is most effective during a

⁸ See in this connection Goldberger, Wheeler, and Sydenstricker, 1920 *b*.

⁹ This is clearly suggested by the following table, length of residence being assumed to be a fair index of the moving habit of the household.

Pellagra incidence in families, according to length of residence, in seven cotton-mill villages of South Carolina during 1916.

Length of residence in village.	Families classified according to length of residence in village.		Pellagra incidence in families residing specified periods in village.	
	Number considered.	Per cent residing specified periods.	Number of pellagrous families.	Per cent of families pellagrous.
Any period.....	753	100.0	56	7.4
Less than 1 year.....	297	39.5	32	10.8
1 year.....	74	9.8	5	6.8
2-4 years.....	189	25.1	9	4.8
4 years or more.....	193	25.6	10	5.2

period immediately anterior to the sharp rise and peak of incidence. Such statistics of pellagra morbidity as were available to us at the beginning of our study indicated that the rise of the seasonal curve of pellagra incidence in the southern States began in the late spring and reached its peak in June. It was assumed, therefore, that the factors favoring the production of pellagra were most effective during the season beginning some time in the late winter or early spring and continuing up to or possibly somewhat into June. The period actually selected by us as representative of this season extended from April 16 to June 15, 1916. Information relating to family income, household food supply, and the composition of the households, etc., for sample sections of this period was secured by trained enumerators who canvassed the village in successive 15-day periods under the immediate direction and supervision of one of us (E. S.)

DIETARY DATA.

The methods adopted for securing data relating to diet have been described fully in a previous communication (Goldberger, Wheeler, and Sydenstricker, 1920 a). It will suffice in the present connection to recall that these data relate to the food supply of the household, not to that of the individual, and so do not indicate the differences that may have existed in the diets of the individual members. It being impracticable to secure our dietary data simultaneously in all villages, the record of household food supply secured in the several villages was for successive 15-day periods between April 16 and June 15. It was assumed that an accurate record for a 15-day period would be a sufficiently representative sample of the supply of the season immediately anterior to the peak of seasonal incidence of the disease, that is, of what may be considered as the pellagra-producing season.

DATA RELATING TO ECONOMIC CONDITIONS.

Since nearly 90 per cent of the individuals composing the population studied were found to be dependent upon the income of family groups composed of more than one person, family income was adopted as the basis for classifying the population according to economic status.

Family income.—The data relating to family income were secured by inquiries of the housewife or of some other responsible member or members of each family, supplemented by data from the mill pay rolls. For the latter we are greatly indebted to the willing cooperation of the administrative officials of the mills.

The information obtained from the families covered (a) the rate of daily earnings of each member earning wages during the half

month preceding the week of the canvass and the various rates of daily earnings of all members who had been employed during the 12 preceding months; (b) the days not at work for all members who had worked for wages during the 12 preceding months; (c) the income from all other sources during the preceding half month as well as during the preceding 12 months, this information being secured in detail for each source of income. On the basis of this information it was possible to approximate the total income of each family for the half month preceding the visit of the enumerator, and, roughly, for any part or all of the preceding year.

Finding that approximately 90 per cent of the total income of the families studied came from the earnings of wage-earning members, the family statements of earnings during this half-month period were compared with the records on the mill pay rolls, and, in the great majority of instances, were found to agree closely with them; but in order to reduce the error arising from even slightly inaccurate statements as to wages, the pay-roll records instead of the family statements have been used to supply the earnings data. For that small proportion of family income made up of wages earned in employment outside of the mills and of the amounts derived from other miscellaneous sources, the family statement was necessarily accepted.

On the basis of the results of some preliminary tabulations it was decided that the family income during the half month preceding the week of the enumerator's canvass would be a fairly accurate indication of family income during the season selected as most significant in relation to the occurrence of pellagra. The basis for classifying families with respect to income was, therefore, the total cash income of each during a 15-day period between April 16 and June 15, 1916. A half-month sample period was used, partly because it corresponded to the sample period for which dietary data were secured and partly because a majority of the mills in the villages paid at semimonthly intervals. The pay-roll data from other mills were adjusted to a half-month basis.

In the course of the canvass of the homes of the mill workers' families other data affecting the economic status of the families were also collected. These related principally to length of experience in mill work, occupational status of wage earners, and the amount and incidence of disabling sickness¹⁰ among wage-earning and other members of households.

Availability of food supply.—With the view of studying the relation of food availability to pellagra incidence, information was collected under the immediate direction of one of us (E. S.), relating to conditions that might effect the supply of a given food or foods. In collecting and recording this information a uniform method was

¹⁰ See Sydenstricker, Wheeler, and Goldberger, 1918.

followed as closely as possible except where specific points suggested the advisability of special inquiry. The principal sources of information and the nature of the information sought were as follows:

(1) Statements were obtained from households as to the immediate source of every article of food entering into their half-month's supplies. Thus it was ascertained, for example, whether the fresh milk used by the household was produced at home, purchased from another mill worker's household in the village, or from some specific farmer, dairy, or store, or donated by a relative, neighbor, or other person. In the event that a household had a source of supply not common generally to households in the village, inquiries were directed with a view of ascertaining the length of time the household had had such a supply, particularly, with respect to the period after January 1, 1916.

(2) From farmers, hucksters, or "peddlers" selling from house to house, statements were secured relating to the quantities sold, prices, frequency of selling, and character of produce sold since January 1, 1916.

(3) From managers and clerks in the stores, markets, and other retail establishments at which mill workers' households largely dealt, data were secured relating to (a) prices during the 15-day period and price changes during 1916; (b) sources of each food sold, whether direct from near-by farms or through middlemen from local agricultural territory or from other sections of the United States; (c) names of brands and quantities of the foods sold; (d) practices with respect to credit to mill workers' households, especially as affected by the amount of earnings by the mill workers.

ECONOMIC CLASSIFICATION.

Method of classification according to economic status.—As has already been mentioned, the great majority of the individuals composing the population studied were members of families who subsisted on the income of families composed of several persons; the small proportion not subsisting on such family income were boarders living under substantially the same conditions as the families with which they boarded. It would seem permissible, therefore, to classify these economically with the members of the family with which they boarded, although it is fully recognized that in so doing a certain, though, for the present purpose, unimportant, error is involved.

In classifying this population according to economic status on the basis of family income the conventional method of using total family income for a given period was found to be so inaccurate in many instances as to be misleading. The average total annual cash income of all of the families for which income data were secured was

about \$700, and relatively few had annual incomes of over \$1,000. Thus the range of total income was relatively small and the families were, from this point of view, fairly homogeneous. They differed, however, very markedly in size and with respect to the age and sex of their members. Manifestly it was improper to classify, for example, a family whose half-month's income was \$40, and was composed of only a man and his wife, with one whose half-month's income was also \$40, but was composed of a man, his wife, and several dependent children. Since family income, for the purpose of this study, was used as an index of the economic status of individuals who composed the family group, it was necessary to take into consideration the number of such individuals in comparing one family with another. A per capita statement of income, however, while more accurate than the statement of total income, was subject to the inaccuracy arising from differences in the age and sex of members of the families to be compared. It appeared advisable, therefore, to employ a common denominator to which the individuals of both sexes and of all ages could be reduced in order to obtain a more accurately representative method of expressing the relative size of the families to be compared.

In the absence of a better common denominator for this purpose, the Atwater (1915) scale of food requirements was employed, and the size of each family was computed according to this scale and expressed in terms of "adult male units."¹¹ The assumption in the use of this scale was that the expenditures for total maintenance for individuals varied according to sex and age in the same proportion as did their food requirements. The assumption is by no means as accurate as could be desired; in its favor, however, it may be said that since family expenditures in the great majority of cases equaled total family income, and since food expenditures were nearly half (among poorer families considerably more than half) of total expenditures, a scale based on food requirements alone is obviously very much more accurate than one omitting any consideration whatsoever of the number, sex, and age of the individuals composing the families

¹¹ The scale used was as follows:

Age.	Equivalent adult male unit.	
	Male.	Female.
Adult (over 16).....	1.0	0.8
15 to 16.....	.9	.8
13 to 14.....	.8	.7
12.....	.7	.6
10 to 11.....	.6	.6
6 to 9.....	.5	.5
2 to 5.....	.4	.4
Under 2.....	.3	.3

to be compared with respect to income.¹² For the present purpose, therefore, the total income of each family as defined above, has been divided by the number of "adult male units" subsisting on the family income, and the resulting figure has been termed the "family income per adult male unit."

Results of classification.—The 747 families for which income data were sufficiently accurate and complete for consideration have been classified by this method and grouped into four convenient classes, each containing a fair proportion of the total number. Table I presents this classification and also the resulting distribution of individuals and their equivalent "adult male units."

The differences in income are also indicated in Table II, which permits of a comparison of the results of classification on the basis of the average income during the half-month period per family, per person, and per "adult male unit." Table III, based on Table II, permits of the same comparison and perhaps expresses these differences more clearly. It will be noted that the same *general* differences

¹² In order to establish a more accurate basis for computing the size of families in comparing their incomes, a detailed study of expenditures for individuals in a number of representative families in cotton-mill villages was undertaken during 1917. While the tabulations of these data were not completed in time for use in the study of the data collected in 1916, it appears that the Atwater scale is roughly indicative of the variations, according to sex and age, in the consumption of all articles for which there are individual expenditures. It should be noted that before using the Atwater scale in the preliminary computations of family income, several published estimates of the cost of maintenance for individuals of various ages were examined. The estimates were based, in several instances, upon the results of investigation of actual expenditures of individual members of families. Using the estimated expenditures for an adult male as 100, the estimates for individuals of other ages of either sex were expressed relatively and compared with the Atwater scale. It appeared that, in most instances, the scales were fairly similar. The following table, computed from probably the most pertinent data available, indicates the relative cost of maintenance (at a "fair standard of living") for a year of individuals of various ages as estimated for Southern cotton-mill workers by the United States Bureau of Labor in 1911, in comparison with the Atwater scale for food requirements.

Comparison of the relative variations in individual expenses for all purposes with variations in individual food requirements according to age and sex.

Age.	Male.		Female.	
	Individual expenses (U. S. Bureau of Labor).	Food requirements (Atwater).	Individual expenses (U. S. Bureau of Labor).	Food requirements (Atwater).
Adult (over 16).....	100	100	89	80
15 to 16.....	85	90	79	80
13 to 14.....	72	80	67	70
12.....	61	70	57	60
10 to 11.....	56	60	59	60
6 to 9.....	45	50	46	50
2 to 5.....	34	40	35	40
Under 2.....	26	30	26	30

The individual expenses estimated were for food (estimated by the U. S. Bureau of Labor, according to the Atwater scale), clothing, medical attendance, and medicines, insurance, amusements, tobacco, and school books. See report on Conditions of Women and Child Wage Earners in the United States, Vol. XVI, Family Budgets of Typical Cotton-Mill Workers by Wood F. Worcester and Daisy Worthington Worcester, Sen. Doc. 645, 61 Cong., 2d sess., 1911, p. 150.

in average incomes for the four groups are indicated by any of the three methods of classification. For reasons already stated, however, the "adult male unit" method is believed to be more accurately representative of actual conditions than either of the others and, therefore, to be preferred for the classification of individual families; it is the method hereinafter employed.

TABLE I.—Number of families and members of families and their equivalents in adult male units in seven cotton-mill villages of South Carolina, classified according to family income during a 15-day period between Apr. 15 and June 16, 1916.

Half-month family income per adult male unit.	Families.	Persons. ^a	Equivalent adult male units. ^b
	Number.	Number.	Number.
Less than \$6.00.....	217	1,289	866.2
\$6.00-\$7.99.....	183	972	675.9
\$8.00-\$9.99.....	139	704	529.2
\$10.00 and over.....	208	800	607.1
All incomes..... ^c	747	3,765	2,678.2
	Per cent. 100.0	Per cent. 100.0	Per cent. 100.0
Less than \$6.00.....	29.1	34.2	32.4
\$6.00-\$7.99.....	24.5	25.8	25.2
\$8.00-\$9.99.....	18.6	18.7	19.8
\$10.00 and over.....	27.9	21.3	22.6

^a Exclusive of persons paying board and including only those dependent upon family income.

^b According to the Atwater scale for food requirements.

TABLE II.—Average half-month family income, computed in terms of "per family," "per person," and "per adult male unit,"^a for various income classes of the population in seven cotton-mill villages in South Carolina.

Half-month family income per adult male unit.	All family income during a half month.	Average income during a half month.		
		Per family.	Per person. ^b	Per adult male unit. ^b
Less than \$6.00.....	\$3,990.45	\$18.38	\$3.09	\$4.61
\$6.00-\$7.99.....	4,780.85	26.12	4.92	7.07
\$8.00-\$9.99.....	4,642.29	33.40	6.55	8.77
\$10.00 and over.....	7,777.99	37.39	9.72	12.81
All incomes.....	21,191.58	28.36	5.63	7.92

^a According to the Atwater scale for food requirements.

^b Exclusive of persons paying board and including only those dependent upon family income.

TABLE III.—Ratio of the average income for each income class to that of all income classes of the population of seven cotton-mill villages of South Carolina.

[The average income is computed in terms of "per family," "per person," and "per adult male unit."]

Family income per adult male unit.	Relative average income during a half month per—		
	Family.	Person.	Adult male unit.
All incomes.....	100	100	100
Under \$6.00.....	65	55	58
\$6.00-\$7.99.....	92	87	89
\$8.00-\$9.99.....	118	116	112
\$10.00 and over.....	132	173	162

Before entering upon a consideration of the relation of family income to pellagra incidence it will be desirable to make brief reference to the factors affecting family income. An analysis of our data with a view of determining, so far as practicable, what these were, showed the principal ones to be as follows: (a) Supplemental income, chiefly from boarders; (b) the number of dependent persons, principally children, in proportion to the number of wage-earning persons in the family; and (c) the earning capacity of the wage earners, including chiefly the factors of natural ability, length of training, and state of health. In the classification of this population according to "family income per adult male unit," those persons in the higher income classes appeared distinctly to have the advantage in each of these respects over those in the lower income classes.

III. PELLAGRA INCIDENCE ACCORDING TO ECONOMIC STATUS.

Having considered the methods employed for securing the basic data relating to the occurrence of the disease and for securing those relating to the classification of the population with respect to economic status, we may now proceed to determine the relationship existing between the economic status of the family and the degree of incidence of the disease.

We have in all 747 households for which our data are sufficiently complete and accurate to permit of classification according to income. There were recorded among the members of these households 97 definite cases of pellagra. In Table IV we have distributed these households in accordance with the family income per adult male unit during the sample half-month period and have indicated therein also the number and per cent of the households in each of the resulting five income classes that were affected with pellagra to the extent of (a) one or more cases, (b) two or more cases, and (c), three or more cases.

It will be observed that the proportion of families affected with pellagra declines with a marked degree of regularity as income increases. This inverse correlation is even more clearly shown when weight is given to households with more than one case of the disease,¹³ as is done in Table V, in which the incidence of pellagra is expressed as a rate per 1,000 persons in each income class.

¹³ Upon the basis of the average half-month income per adult male unit for each of the income classes and the corresponding pellagra rate per 1,000 persons, the Pearsonian coefficient of correlation is -0.91 ± 0.05 . While the small number of classes considered must, of course, be taken into account, the expression indicates high degree of correlation (-1.0 being perfect inverse correlation).

TABLE IV.—*Number and per cent of households of different income classes affected with pellagra in seven cotton-mill villages of South Carolina in 1916.*

Half-month family income per adult male unit.	All households.	Pellagrous households in which were—		
		One or more cases of pellagra.	Two or more cases of pellagra.	Three or more cases of pellagra.
NUMBER.				
Less than \$6.00.....	217 ^a	28	17	7
\$6.00-\$7.99.....	183	21	3	1
\$8.00-\$9.99.....	139	8	4	0
\$10.00-\$13.99.....	144	3	0	0
\$14.00 and over.....	64	1	0	0
All incomes.....	747	61	24	8
PER CENT.				
Less than \$6.00.....	100.0	12.9	7.8	3.2
\$6.00-\$7.99.....	100.0	11.5	1.6	.5
\$8.00-\$9.99.....	100.0	5.8	2.9	0.0
\$10.00-\$13.99.....	100.0	2.1	0.0	0.0
\$14.00 and over.....	100.0	1.5	0.0	0.0
All incomes.....	100.0	8.2	3.2	1.1

TABLE V.—*Number of definite cases of pellagra and rate per 1,000¹ among persons of different income classes in seven cotton-mill villages of South Carolina in 1916.*

Half-month family income per adult male unit.	Total.			Males.			Females.		
	Number of persons.	Number of cases.	Rate ¹ per 1,000.	Number of persons.	Number of cases.	Rate per 1,000.	Number of persons.	Number of cases.	Rate per 1,000.
Less than \$6.00.....	1,312	56	42.7	650	20	30.8	662	36	54.4
\$6.00-\$7.99.....	1,037	27	26.0	521	6	11.5	516	21	40.7
\$8.00-\$9.99.....	784	10	12.8	376	4	10.7	408	6	14.7
\$10.00-\$13.99.....	736	3	4.1	363	0	0.0	373	3	8.0
\$14.00 and over.....	291	1	3.4	161	1	6.2	130	0	0.0
All incomes.....	4,160	97	23.3	2,071	31	14.9	2,089	66	31.6

¹ Since a marked variation in the pellagra rate according to age and sex was found for the population studied (Goldberger, Wheeler, and Sydenstricker, 1920 b), and since, ordinarily, differences in the distribution of persons according to age occur in different economic groups, computation of rates adjusted to a standard population was made. The influence of differences in the sex distribution in any age group was insignificant, and practically the same incidence rates were obtained after making adjustments to a standard age-distribution, as is shown in the following table:

TABLE Va.—*Comparison of crude pellagra rates and of rates after adjustment for age to a standard population for each income class.*

Family income per adult male unit.	Case rate per 1,000.	
	Crude.	Adjusted.
Less than \$6.00.....	42.7	41.0
\$6.00-\$7.99.....	26.0	24.8
\$8.00-\$9.99.....	12.8	14.2
\$10.00-\$13.99.....	4.1	5.2
\$14.00 and over.....	3.4	2.5

The occurrence of multiple-case families, especially from the point of view of difference in income, invites special comment. The 97 cases of pellagra occurred in 61 families. In each of 24 of these families, two or more cases occurred, while in each of 8, three or more cases developed. Taking into consideration the size of the families and assuming that all individuals were equally susceptible to the disease,¹⁴ a computation of the probability of the occurrence of multiple-case families according to purely chance distribution indicated that in the 747 families we should expect about 90 families with one case each, about 8 families with two or more cases, while the probability of households each with three or more cases would be less than 2 in 10,000. The actual occurrence of 24 families with two cases each and of 8 families with three or more cases would thus seem to be far in excess of the result of chance.¹⁵ The fact that multiple-case families occurred only in the lower-income classes and that families with three or more cases occurred practically only in the lowest-income class plainly shows that the tendency toward concentration of cases in certain families increases as income diminishes. Pellagra incidence in the population studied therefore not only varied inversely according to family income, but with decreasing income it seemed to show an increasing tendency to affect members of the same family.

DISCUSSION.

The very marked inverse correlation between low income and pellagra incidence naturally calls for explanation. Under the conditions of the study the following possibilities in this regard suggested themselves for consideration:

- (a) Bad hygiene and sanitation;
- (b) Difference in sex and age composition of the population in the several income classes; and
- (c) Difference in diet.

(a) *Bad hygiene and sanitation* are in general closely associated with poverty so that the incidence of a disease, the dissemination of which is favored by such conditions, may be expected to be unusually high in the lower economic strata. Consequently it is natural to suspect that a disease found to be highly prevalent in an environment of poverty is dependent on the almost inevitably attendant unhygienic and insanitary conditions for its propagation, and to assume that it is of microbial origin. The possibility of an essential infective etiological factor in this disease has therefore been given careful consideration, and in a previous paper (Goldberger, Wheeler, and Sydenstricker, 1920 c) we reported the results of our study of the relation

¹⁴ So far as sex and age are concerned, all families (with but few exceptions) contained fairly comparable proportions of "susceptible" individuals.

¹⁵ Acknowledgment is made to Associate Statistician F. M. Phillips, United States Public Health Service, for assistance in this computation.

of certain factors of a sanitary character to the incidence of pellagra in these villages. No consistent correlation was found.¹⁶ This, coupled with the results of the other of our own studies (see discussion by Goldberger and Wheeler, 1920, pp. 36-41) and of the studies of other investigators (White, 1919; and Boyd and Lelean, 1919), and with the fact of the complete absence of any unequivocal evidence in support of an essential infective etiological factor in this disease, not only renders discussion of hygienic and sanitary factors in the present connection unnecessary but, we believe, permits of their dismissal from further serious consideration.

(b) *Differences in sex and age composition of the population in the several income classes.*—We have shown in a previous communication (Goldberger, Wheeler, and Sydenstricker, 1920 b) that the incidence of the disease in the population of these villages differs markedly in the sexes and at certain age periods; it is conceivable, therefore, that differences in the sex and the age distribution in the different income classes might give rise to the phenomenon under discussion. That this is not the case, however, is evident (1) when it is recalled that we are dealing with a population composed of family units and (2) when we compare the indications afforded by Tables V and VI, showing, respectively, the sex and the age distribution of the population of each economic class, and note the agreement in the indications afforded by the crude rates and by the rates after adjustment to a standard population (footnote to Table V).

TABLE VI.—*Number and per cent of persons in each income class, classified according to age, in 7 cotton-mill villages of South Carolina in 1916.*

(The classes being divided from each other at those ages at which the pellagra incidence rate for the whole population varies most sharply.)

Half-month family income per adult male unit.	Age group.							
	All ages.	Under 5 years.	5-9	10-19	20-29	30-44	45-54	55 years and over.
NUMBER.								
Less than \$6.00.....	1,312*	269	251	317	162	217	49	56
\$6.00-\$7.99.....	1,037	162	166	270	172	166	60	41
\$8.00-\$9.99.....	784	104	108	229	149	114	48	32
\$10.00-\$13.99.....	736	95	69	173	215	102	46	36
\$14.00 and over.....	291	27	15	71	91	63	9	15
All incomes.....	4,163	618	609	1,069	789	662	212	180
PER CENT.								
Less than \$6.00.....	100	19.8	19.1	24.2	12.4	16.5	3.7	4.3
\$6.00-\$7.99.....	100	15.7	16.0	26.0	16.6	16.0	5.8	3.9
\$8.00-\$9.99.....	100	13.3	13.8	29.2	19.0	14.5	6.1	4.1
\$10.00-\$13.99.....	100	12.9	9.4	23.5	29.2	13.9	6.2	4.9
\$14.00 and over.....	100	9.3	5.2	24.4	31.3	21.6	3.1	5.2
All incomes.....	100	15.6	14.6	25.5	19.0	15.9	5.1	4.3

* The data collected during 1916 were not in a form to permit the study of the relation of crowding in the home to pellagra incidence. We may state, however, that a preliminary analysis of a considerable mass of data bearing on this point, collected during 1917, shows very little, if any, correlation between them when the effect of income is minimized.

^a See Goldberger, Wheeler, and Sydenstricker, 1920 b.

(c) *Differences in diet.*—The results of budgetary investigations have repeatedly demonstrated the association of marked variations in diet with variation in family income.¹⁷ It seemed doubly pertinent, therefore, to inquire what, if any, variations in diet were associated with variations in income among the families of our cotton-mill villages. Accordingly, we prepared Table VII, showing the average food supply of the households of the several income classes. To facilitate comparison between the averages thus presented, indices have been computed, the figures for the households with the highest income being used as the base. It will be noted that, from the point of view of income, the following general tendencies are suggested:

1. The smaller the income the smaller were the supplies purchased of all meats (except salt pork), green vegetables, fresh fruits, eggs, butter, cheese, preserved milk, lard, sugar (including sirup), and canned foods.

2. The smaller the income the larger were the supplies purchased of salt pork and corn meal.

3. In the households of the various income classes the quantities of the purchased supplies¹⁸ of dried peas and beans, potatoes, dried fruits, wheat flour and bread, fresh milk, and rice appeared without any consistent trend.

Thus it appears that there were associated with differences in family income quite definite differences in household food supplies. In order to determine the outstanding differences more clearly, the households with intermediate incomes were disregarded and comparison was made of the food supplies in households presenting the greatest contrast from an economic standpoint (i. e., those households representing the respective extremes of family income), with the result that not only did the differences already noted stand out more clearly, but, in addition, it appeared that the supplies of wheat flour and bread and of fresh milk were appreciably smaller in the poorest households.

In that part of our study dealing with the relation of household food supply to pellagra incidence (Goldberger, Wheeler, and Sydenstricker, 1920a) a very definite significant relationship between the character of the diet and the incidence of the disease was demonstrated, and since, as we have seen above, a marked inverse correlation exists between the amount of family income and the degree of incidence of the disease, it follows that the character of the diet of the population under consideration may be expected to vary with the amount of family income, in the sense at least that the lower the income the more the character of the diet will tend to approach that

¹⁷ In this connection see Sydenstricker, 1915.

¹⁸ Practically all food supplies, with the exception of fresh milk, were purchased (i. e., not home-produced) during the season (the late spring) of the year under consideration. Households securing supplies of milk from home-owned cows have not been included in the above table (Table VII), since supplies of food from this source constitute a factor affecting the diet of the population apart from the factor of family income. They are considered in another connection.

associated with pellagra. This is confirmed by the quite definite differences in food supply above actually shown to be associated with differences in family income, and further by the fact that when comparison is made, such as Table VII and Fig. 1 permit, it is found that in a general, but quite definite, way the food supply of the house-

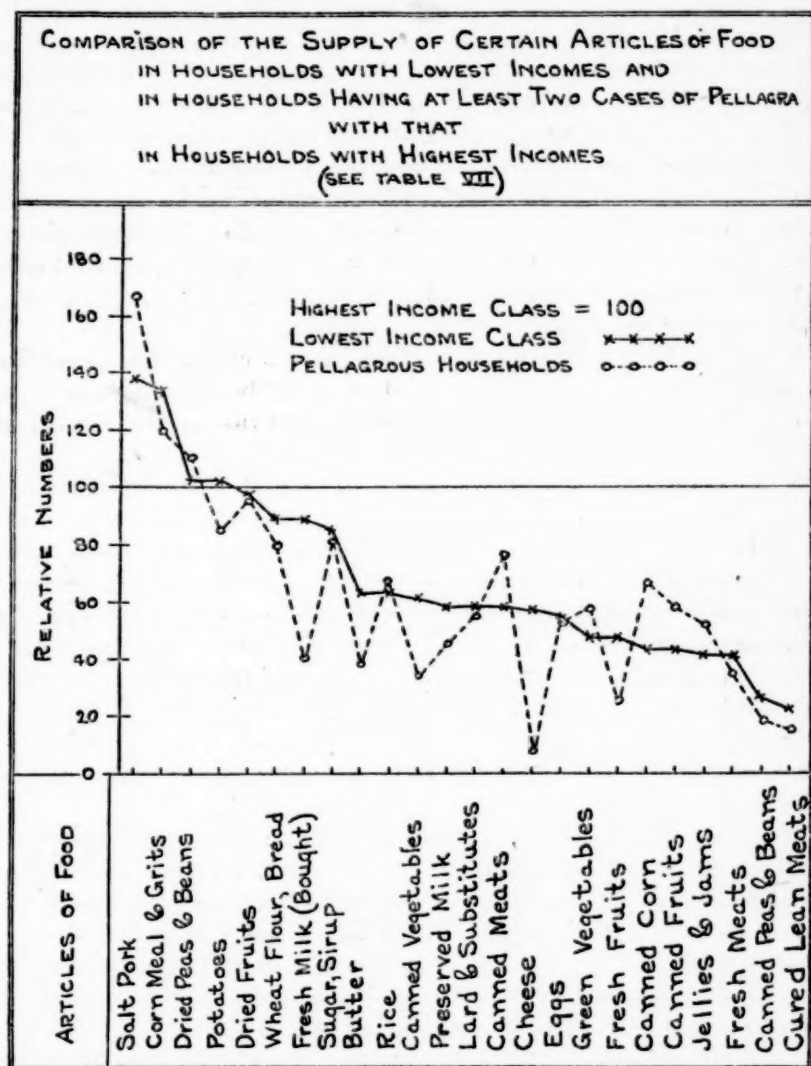


FIG. 1.

holds of the lowest-income class tends to be similar to that of the group of pellagrous households in each of which at least two cases of pellagra occurred prior to August 1, 1916; that is, similar to that of the group whose food supply more closely approximates a representative sample of a pellagra-producing diet than does any other afforded by our study.

TABLE VII.—Average supply (per adult male unit) during a 15-day period between Apr. 15 and June 16, 1916, of various purchased articles of food^a in households of different income classes and in the group of those households in each of which two or more cases of pellagra occurred prior to Aug. 1, 1916.

GRAMS PER ADULT MALE UNIT PER DAY.

Half-month family income per adult male unit.	Salt pork.	Corn meal and grits.	Dried peas and beans.	Potatoes.	Dried fruits.	Wheat flour, bread.	Fresh milk (bought).	Sugar syrup.	Butter.	Rice.	Canned vegetables.	Preserved milk.	Lard and lard substi- tutes.	Canned meats.	Cheese.	Eggs.	Green vegetables. ^b	Fresh fruits.	Canned corn.	Canned fruits.	Jellies and jams.	Fresh meats.	Canned peas and beans.	Cured lean meats.
\$14.00 and more.....	59	126	31	71	10	447	310	59	30	8	58	4	63	20	3	59	103	41	9	27	11	47	9	53
\$10.00-\$13.99.....	49	122	31	107	9	434	302	61	35	6	36	4	54	12	2	27	63	33	10	26	10	32	6	28
\$8.00-\$9.99.....	54	131	35	97	9	410	342	67	14	5	37	3	49	16	3	41	60	31	8	21	8	30	4	24
\$6.00-\$7.99.....	59	174	33	88	9	499	317	55	19	4	46	1	49	14	3	38	61	30	6	14	9	21	5	20
Less than \$6.00.....	54	169	31	73	10	399	282	50	19	5	35	2	37	12	2	33	49	19	4	12	5	19	3	12
Pellagrous households.	65	150	34	69	10	361	127	48	11	6	20	2	35	16	(c)	31	61	10	6	16	6	16	2	8

RELATIVE NUMBERS. BASE: SUPPLY PER ADULT MALE UNIT PER DAY IN HOUSEHOLDS WITH HIGHEST INCOMES.

Half-month family income per adult male unit.	Salt pork.	Corn meal and grits.	Dried peas and beans.	Potatoes.	Dried fruits.	Wheat flour, bread.	Fresh milk (bought).	Sugar syrup.	Butter.	Rice.	Canned vegetables.	Preserved milk.	Lard and lard substi- tutes.	Canned meats.	Cheese.	Eggs.	Green vegetables. ^b	Fresh fruits.	Canned corn.	Canned fruits.	Jellies and jams.	Fresh meats.	Canned peas and beans.	Cured lean meats.
\$14.00 and more.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
\$10.00-\$13.99.....	125	121	100	151	99	97	95	103	117	75	62	100	86	60	67	97	60	81	111	96	91	68	67	100
\$8.00-\$9.99.....	158	120	113	127	99	92	107	114	47	63	61	73	78	80	100	75	57	79	89	73	73	64	41	45
\$6.00-\$7.99.....	144	138	107	124	91	101	99	93	63	50	79	25	78	70	67	56	64	58	67	52	52	45	54	38
Less than \$6.00.....	138	134	100	103	100	89	88	85	63	62	60	50	59	63	67	56	47	46	44	41	43	49	22	23
Pellagrous households.	167	119	110	85	100	81	40	81	37	75	31	50	55	80	.....	5 ^c	58	24	67	59	55	34	22	15

^a For explanation of terms, see Goldberger, Wheeler, and Sydenstricker 1920a, appendix.^b Includes string beans.^c Less than 0.5 of a gram.

DIFFERENCES IN INCIDENCE AMONG HOUSEHOLDS.

From the foregoing considerations the conclusion would seem to be suggested that the inverse correlation between pellagra incidence and family income depended in large measure, if not entirely, on the unfavorable effect of a low income on the character of the diet. In this connection, however, it must be noted and consideration must be given to the fact that a large proportion of households with low incomes were not affected with the disease.¹⁹ Thus, in the village of *In*, where the highest of the incidence rates observed by us in 1916 occurred and where the rate among persons constituting the households with incomes under the average was 90 per 1,000, over 65 per cent of these poorer households appeared not to be affected, and, in varying degree, this was true of each of the seven villages studied. That the exemption of these families from pellagra was not due to a lack of subjects of "susceptible" sex is evident from what has already been said on this point; and that it could not be attributed to lack of human material of "susceptible" age appears very clearly when the distribution of the population according to age is compared for the pellagrous and for the poorer nonpellagrous households in a representative village, as is done in Table VIII. Manifestly, therefore, the amount of family income—that is, money income (in the sense here used), such as wages, cash payments from boarders, cash receipts from sales of supplies, and other sources—was not the sole factor determining the character of the household diet.

¹⁹ Similarly, a large proportion of the members of pellagrous households were apparently unaffected by the disease. As has already been stated, the present study deals with the household, not with the individual, excepting only as to pellagra incidence. We have, therefore, no special data on which an explanation of the exemption of the unaffected members of a household might be based. Nevertheless, in the light of (a) certain general observations and (b) of analogies to such food deficiency diseases as scurvy and beriberi, together with (c) the knowledge gained as the result of the newer work of many students in the field of diet and nutrition, the following suggestions may properly be submitted for consideration in this connection:

1. *Differences in diet consumed among individuals of the household.*—Although all members of a household presumably have the same diet available, as the result of individual likes and dislikes, observable at almost any table, slight differences in diet actually consumed are common and marked differences, amounting in some instances to outstanding individual eccentricities, are not rare. Furthermore, differences in diet actually consumed may arise from, or be accentuated by, food eaten between meals and by supplemental foods of one kind or another in respect to which individuals of the same household may differ considerably. Clearly, then, a knowledge of the exact composition of the diet of a household or other dietary group does not necessarily justify the assumption of a knowledge of the composition of the diet consumed by an individual member of such household or group. Failure to appreciate this, it may be noted, has been a frequent cause of serious error and consequent confusion in connection with studies of food-deficiency diseases.

2. *Differences in individual susceptibility or resistance.*—Assuming identity of diet actually consumed, differences in incidence among individuals of the same household or other dietary group may result from individual variation in resistance or susceptibility, which may conceivably be related to (a) an inherent individual characteristic, (b) the age or sex of the individual, (c) the existence of some exhausting underlying disease or condition (hookworm, dysentery, duodenal fistula), or (d) to unlike physical strain or exertion.

3. *Combinations of factors 1 and 2.*

TABLE VIII.—*Age distribution of population constituting the nonpellagrous households with low family income^a and the pellagrous households of the mill village of In.*

Households.	Age groups.							
	All ages.	Under 5.	5-9	10-14	20-29	30-44	45-54	55 and over.
NUMBER OF PERSONS.								
Nonpellagrous.....	265	52	53	61	33	45	14	7
Pellagrous.....	168	31	32	49	19	31	5	1
All households.....	433	83	85	110	52	76	19	8
PER CENT.								
Nonpellagrous.....	100.0	19.6	20.0	23.0	12.5	17.0	5.3	2.6
Pellagrous.....	100.0	18.5	19.0	29.2	11.3	18.5	3.0	.6
All households.....	100.0	19.2	19.6	25.4	12.0	17.5	4.4	1.8

^a That is, under \$8 per adult male unit during a half-month period in the late spring of 1916.

This is quite in accord with common experience, which teaches that there are many factors that, singly or in varying combination, may have an important influence on the character of the diet and that may vary among and thus may distinguish different households of the same income. In illustration of this, reference may be made to the group of factors that tend to determine the amount and proportion of family income available for the purchase of food, an example of which is the occurrence of sickness or injury, making an unusual draft on the family income. Related to such factors are the general spirit of the household with respect to thrift (which, when unwisely directed, may be harmful) and the intelligence and ability of the housewife in utilizing the available family income.

More tangible than these, and perhaps of more immediate practical importance in its effect on the household diet, is the difference among households with respect to the availability of food supplies. We found that, among households with similar incomes and of the same village and thus with access to the same markets, there were some more favorably situated in having sources of food supplies than others either did not possess or possessed in a lesser degree. Such sources frequently were gardens, home-owned cows, swine, poultry, and the like.

DIFFERENCES IN INCIDENCE AMONG VILLAGES.

Besides differences among households with similar incomes and of the same village, quite marked differences in pellagra incidence were also observed, as has already been pointed out, among the villages themselves. We have sought to determine the explanation of this by considering in order the various possibilities that suggested themselves.

(a) The general environment (except as to condition of sanitation and food supply), the origin and type of the population, the character of work, and the general habits of living among these populations being, as we have already stated, strikingly similar, do not call for consideration in the present connection.

(b) Differences in sanitary conditions among villages were noted and their relation to differences in the incidence of the disease was studied without, however, discovering any consistent correlation among them. Reasons have been given why hygienic and sanitary factors might be dismissed from consideration in the attempt to explain the inverse correlation between family income and the incidence of pellagra.²⁰ Further discussion of these factors in the present connection would therefore seem to be unnecessary.

(c) The marked association between low family income and pellagra incidence suggested the possibility that the difference in incidence among villages might be associated with a difference in the proportion of families of low incomes included in the populations of the several villages. But if the differences in the proportion of the population which had low incomes in the various villages be compared with the differences in pellagra incidence, as is done in Table IX, no consistent correlation is disclosed. Clearly the differences in pellagra incidence among these villages can not be accounted for by differences in the economic status of the populations concerned.

TABLE IX.—*Comparison of the relation of rate of pellagra incidence to proportion of population of low family income in seven mill villages of South Carolina in 1916.*

Village.	Per cent of population whose half-month family income per adult male unit was less than—		Pellagra rate per 1,000 population (all income) in 1916.
	\$6.00	\$8.00	
All villages.....	31.5	56.5	23.4
At.....	37.0	64.3	20.7
In.....	40.9	66.6	64.6
Ny.....	26.2	45.7	0.0
Re.....	13.2	23.7	24.9
St.....	38.3	58.1	10.9
Sa.....	28.3	57.4	25.7
Wg.....	31.0	64.0	18.7

Pearsonian coefficient of correlation: $r=0.33\pm0.21$.

(d) As family income is simply an index of the power to buy, and as this power is obviously limited by the cost of the thing desired (in this instance food), the thought naturally suggests itself that differences in prices in the different villages might be of importance in the present connection. That this was a negligible factor, however, is

²⁰See pages 2688 and 2689.

shown by the fact that we found no significant differences in food prices in the different villages.

(e) That individuals of "susceptible" ages may have been present in relatively insignificant numbers in the villages among whose poorer households few if any were affected by the disease, and that this may account for the differences, is an explanation that may be dismissed from consideration when the age distribution of the population is compared according to village, as may be seen by reference to Table X.

TABLE X.—Comparison of the age distribution of the population constituting the households with low family incomes^a of seven cotton-mill villages of South Carolina.

Villages.	All ages.	Classified by age periods (years).						
		Under 5 years.	5-9	10-19	20-29	30-44	45-54	55 and over
NUMBER OF PERSONS.								
At.....	337	65	65	82	63	59	18	15
In.....	433	83	85	110	52	76	19	8
Ng.....	331	60	56	87	45	57	15	11
Rc.....	206	37	42	50	34	32	5	6
Sn.....	338	65	46	69	61	52	14	31
Sa.....	288	51	51	68	40	34	14	10
Wy.....	407	62	72	120	39	73	24	17
All villages.....	2,350	421	417	586	334	383	109	98
PER CENT.								
At.....	100.0	17.5	17.5	22.3	17.2	16.1	4.9	4.1
In.....	100.0	19.2	19.6	25.4	12.0	17.5	4.4	1.8
Ng.....	100.0	18.1	16.9	26.3	13.6	17.2	4.5	3.3
Rc.....	100.0	18.0	20.4	21.3	16.5	15.5	2.4	2.9
Sn.....	100.0	19.2	13.6	20.4	18.0	15.4	4.1	9.2
Sa.....	100.0	19.0	19.0	25.4	14.9	12.7	5.2	3.7
Wy.....	100.0	15.2	17.4	29.5	9.6	17.9	5.9	4.2
All villages.....	100.0	18.0	17.7	21.9	14.2	16.3	4.6	4.2

^a That is under \$8 per adult male unit during a half month in the late spring of 1916.

(f) We thus come to a consideration, finally, of differences among villages with respect to availability of food supplies on the local markets or from home production. More or less marked differences in this respect were found to exist. In relating these to differences in pellagra incidence it should be borne in mind that the availability to a consumer of a supply of a given article or group of articles of food is often involved in a number of interrelated conditions, the influence of any one of which may be difficult to measure. Therefore, in analyzing community conditions affecting the supply of any article or articles of food, only the outstanding and clearcut differences between localities can be considered. Furthermore, since even considerable differences in pellagra incidence among localities of small population are not necessarily a reflection of community conditions, it seemed desirable to select for the study of the relationship under

consideration villages presenting the most marked contrast in the incidence of the disease, thereby avoiding the possibly confusing effects of irregularities likely to arise in attempts to relate community conditions of food availability to pellagra rates for which community conditions were possibly responsible only in part or not at all. There was, moreover, the compelling practical consideration to thus restrict ourselves in the fact that the amount of labor involved in a detailed study of conditions in each of our villages was beyond the physical capacity of the available personnel to perform. Accordingly we selected for study *Ny* village, with no pellagra, and *In* village, with a rate of not less than 64.6 per 1,000 during 1916. The facts, as we were able to determine them relating to the availability of supplies of various foods in these two villages, are briefly summarized in the following:

(1) *Retail grocery establishments.*—In both villages the mill workers' households purchased their supplies of all foods from the company stores and from grocery stores in adjacent communities, with the exception of fresh meats, fresh milk, and varying proportions of their supplies of eggs, butter, green vegetables, and fresh fruits. Exclusive of the articles named, the availability of supplies of all foods appeared to be the same in both villages for the reasons that (a) in both villages there existed company stores which carried in stock practically the same kinds of foods and were operated along similar lines from the point of view of credit allowances to mill workers, and (b) within a mile of either village were general grocery stores carrying in stock the same kinds and varieties of foods as those sold at the company stores. The company stores at *Ny*, however, did not sell fresh vegetables, potatoes, and fresh fruits, there being an agreement with the lessee of the village market to the effect that the latter should have the exclusive store privilege of selling these articles. A much more regular and abundant supply of fresh vegetables and fruits was available at the *Ny* market than at the *In* company store.

It is of interest to note that the *In* households, whose incomes were less than the average income for the two villages, relied to a greater extent upon the company store than the *Ny* households with similar incomes. This is indicated by the purchase and food supply records during the 15-day period from May 16 to May 30, 1916, which show that 60 per cent of the *In* households purchased all of their groceries (exclusive of home produce and produce from near-by farms) from the company store as compared with only 13 per cent of the *Ny* households.

(2) *Fresh-meat markets.*—In *Ny* there was a fresh-meat market which had been open seven days in the week the year round for several years. This market, as already noted, also sold fresh fruit

and vegetables. The nearest other market was 1 mile away, and this market operated a wagon which regularly had taken orders and delivered fresh meat in the village at the doors of the mill workers' households during the spring and the preceding fall and winter. At the town of Seneca, 4 miles away, there were two other fresh-meat markets which were occasionally patronized by *Ny* mill workers. In *In* village there was no fresh-meat market, and there had not been any since the last of February, 1916. In October, 1915, a privately operated market was opened in the basement of the company store building. This market was kept open every week day until about January 1, 1916, but, from all accounts, it was poorly managed. For this reason and for the reason that locally produced fresh meats became scarce after January 1, the market was open only one or two days a week during January and February and its credit trade was severely curtailed, being now limited to those households which had been prompt in settlements. In the latter part of February the market ceased to be operated. In the town of Inman, a mile or more from the mill village, there was a market selling fresh meat for cash only, which had a few regular customers among the mill workers. No other market was accessible except in the city of Spartanburg, 13 miles away.

With the exception of a small amount of poultry purchased at home or purchased from near-by farmers, the sole sources of fresh meats in the two villages during the late spring of 1916 were these fresh-meat markets. The difference in availability of a fresh meat supply in the two villages is clearly reflected in the records of actual purchases during the 15-day period May 16-30, 1916, illustrated in Table XI, thereby suggesting a marked contrast in fresh-meat consumption between the two villages for households of similar incomes. (See also Table XIII.)

TABLE XI.—Comparison of availability of fresh meat as shown by the number of purchases and the average daily supply of this food during the period May 16-30, 1916, in households, with family incomes less than the average, of two mill villages of South Carolina.

Number of purchases during 15-day period.	Village of <i>Ny</i> . (average daily supply per adult male unit, 31.2 grams.)		Village of <i>In</i> . (average daily supply per adult male unit, 7.9 grams.)	
	Number of households purchasing.	Per cent of total households.	Number of households purchasing.	Per cent of total households.
None.....	17	31.0	46	65.8
1.....	6	10.9	18	25.7
2.....	7	12.7	4	5.7
3.....	7	12.7	1	1.4
4.....	6	10.9	1	1.4
5.....	6	10.9	0	0.0
More than 5.....	6	10.9	0	0.0

(3) *Produce from adjacent farm territory.*—The two villages presented a striking contrast with respect to the availability of food supplies from adjacent farm territory.

In the mill village of *In* there were no regular sellers of farm produce during the spring of 1916; farmers visited the village only occasionally and then practically solely in order to dispose of such goods as they had been unable to sell in the near-by town of Inman. The absence of hucksters was so marked that repeated and detailed inquiries were made of mill workers' households and of other persons living in or in close touch with the village, and the village was several times canvassed in order to secure as complete and accurate information as possible in relation thereto. *Ny*, on the other hand, appeared to be a center for marketing produce from near-by farms. In addition to a number of farmers who marketed their produce in that village occasionally, not less than 22 farmers who habitually sold in the village at retail were found and interviewed in a single canvass of the adjacent territory. These regular hucksters came to the village once a week or oftener practically the year round. Of the 22 who were interviewed, 15 sold fresh milk and butter, 10 sold eggs, 7 sold poultry, 5 sold fresh pork, 2 sold fresh beef, and practically all of them sold potatoes and vegetables. Those selling milk and butter delivered regularly throughout the year and marketed other produce in different seasons. Thus, eggs were sold principally in the spring, poultry in the summer, autumn, and winter, fresh beef and pork in the autumn and winter, and green vegetables in the spring, summer, and autumn. On the basis of statements made by those selling produce regularly, not less than 41,000 quarts of fresh milk (about 790 quarts weekly), 12,000 pounds of butter (about 230 pounds weekly), 1,800 dozen eggs, and 4,200 pounds of live poultry, fresh beef, and fresh pork were sold during the 12 months ending May 30, 1916. These totals do not include quantities sold by other farmers or by stores and markets.

This contrast in available sources of farm produce is indicated also by the statements of actual purchases by the households in the respective villages, secured in the course of the dietary canvass. These statements have been summarized for households of similar incomes in Table XII. A striking difference is shown in the extent to which the households in *Ny* and *In* relied upon near-by farms for supplies of certain foods.

TABLE XII.—*Comparison of availability of certain foods in two cotton-mill villages of South Carolina, as indicated by the proportion of the households with family incomes under the average of the contrasted villages purchasing the specified articles from nearby farms during the period May 16-30, 1916.*

Article purchased.	Ny.			In.		
	Average quantity per household purchasing.	Households purchasing.		Average quantity per household purchasing.	Households purchasing.	
		Number.	Per cent of total households.		Number.	Per cent of total households.
Fresh milk.....	22.5 qts.	24	51.0	29.3 qts.	3	4.5
Butter.....	3.4 lbs.	23	49.0	4.0 lbs.	1	1.5
Eggs.....	2.9 doz.	19	40.5	6.0 doz.	1	1.5
Fresh vegetables.....		31	66.0		1	1.5
Fresh fruit.....		8	17.0		0	0.0
Poultry.....	4.0 lbs.	1	2.1	3.0 lbs.	1	1.5
Any of the above articles.....		40	83.3		6	9.0
None.....		8	16.7		61	91.0

The difference between *Ny* and *In* in availability of food supplies from adjacent farm territory was so pronounced that further inquiries were made into some of the underlying conditions in order to discover, if possible, what other economic factors were responsible for bringing this about. From these inquiries it appeared that at least two conditions were important in causing the difference in availability of the supply of the foods in question: namely (a) differences in the kind of agriculture in the territory adjacent to the villages, and (b) differences in marketing conditions. The two are closely related, but for the sake of clearness it will be advantageous to discuss them separately.

(a) Contrast in the kinds of agriculture near the two villages.—A census of the farm products in the agricultural territory adjacent to the two villages was not undertaken, but from observation in the course of several trips and canvasses in the sections in question it was quite clear that a marked contrast existed in the kinds of agriculture pursued. The territory around *In* was planted principally in cotton, and relatively little diversification in crops existed. Truck farming on any considerable scale was not engaged in. Few beef cattle were raised and milch cows apparently were usually not more than sufficient to supply the household needs of the farmers. Many farmers had no cows or pigs or even poultry. The agriculture in the *In* section seemed rather typical of the cotton areas in South Carolina. Cotton was the predominant crop; all other products were incidental, none of them constituting the principal output of any farm, so far as was observed. The territory around *Ny*, on the other hand, was exceptional for South Carolina in that a considerable amount of diversified farming was carried on, although not fully comparable in

this respect with the farming sections in States where one-crop agriculture has not been the rule. Cotton was a relatively less important crop, and beef cattle, swine, poultry, and milch cows seemed much more abundant than in the *In* section. Apparently greater emphasis was given to gardens, and the amount of truck produced was noticeably larger. The physical character of the section apparently was one cause of this difference in products. The land around *In* is almost level, lies well below the foothills of the Blue Ridge Mountains, and is well suited for the growing of cotton. The land around *Ny* is quite rolling and even hilly, being, in fact, in the foothills of the mountains and thus not so well suited to cotton growing. Land not suitable for the cultivation of cotton and, hence, available and used for corn and truck products was consequently far more abundant near *Ny* than near *In*.

(b) Contrast in market conditions.—Conditions affecting the market for farm produce from the two sections were quite different in some important respects. The village of *Ny* is itself more isolated than the village of *In* and is not near any important community. The nearest railway station is a mile away and is surrounded by only about a dozen houses, including three small stores. Seneca, the nearest town of any size (population 1,313 in 1910), is some 4 miles from *Ny*, and Greenville, the nearest city (population 15,741 in 1910), is about 40 miles distant. Seneca exports comparatively little produce and hence its market is limited to local needs which are not sufficient to absorb all the miscellaneous farm products of the vicinity. *Ny* is thus a competitor for such produce as the adjacent farm territory affords. The village itself has been in existence without much change in size for about 25 years, and we found that some of the sellers of farm produce had been visiting it regularly for over 10 years. On the other hand, *In* mill village is almost on the outskirts of the town of Inman (population 474 in 1910), which is on the railroad connecting Spartanburg, S. C., with Asheville, N. C. The demands of the Inman market for farm products are far from being confined to securing sufficient supplies for the needs of its townspeople, since several resident buyers purchase the surplus produce of the adjacent territory and ship it to Spartanburg. Since Spartanburg (population 17,517 in 1910) is but 13 miles distant along a good highway, buyers from that city cover the territory around *In* village fairly thoroughly, and farmers having produce to market often take it to the city when they go there to avail themselves of Spartanburg's superior shopping advantages. The position of *In* village appears, therefore, to be distinctly disadvantageous with respect to farm produce since it must compete for this not only with the town of Inman but, more important, also with the city of

Spartanburg. So far as could be ascertained in 1916, no regular trade with near-by farms had been established, and, as has been pointed out, such casual trade as existed was only that afforded by occasional visits of hucksters who, after making the rounds in the town of Inman, had unsold remnants of produce.

(4) *Home-provided foods.*—Specific inquiries were made of all mill workers' households regarding their possession of cows, poultry, and gardens and, as far as practicable, regarding their importance particularly during the spring of 1916. Different proportions of the households in the two villages were found to have such sources of food supplies.

(a) *Milk cows.*—There was but little difference in the proportion of households in either village owning productive cows during the spring of 1916, the percentage being 17.2 for *Ny* and 23.3 for *In* among households having less than the average income. Such difference as existed in this respect was in favor of *In*. But it should be noted in this connection that 33.3 per cent of the *In* households had no fresh-milk supply at all during the 15-day period for which household supply records were kept, as against only 8 per cent of the *Ny* households (see Table XIV). This difference in distribution was caused by the larger proportion of *Ny* households that purchased milk from hucksters, since, as shown in Table XII, 51 per cent of *Ny* households purchased fresh milk from hucksters as against 4.5 per cent of *In* households.

(b) *Swine.*—Slaughtering of hogs is done in autumn and winter. This is a general practice and prevailed in *Ny* as well as in *In*. Home-produced pork did not figure in the spring food supply of mill workers' households in either village, except in the form of cured and salt meat. Of the *Ny* households, 17 per cent slaughtered home-raised hogs as compared with 33.3 per cent of *In* households. All of these households slaughtered their hogs before February 1, 1916, the majority in either village slaughtering before Christmas, 1915. Of the *Ny* households, 11 per cent cured home-slaughtered meat, as compared with 29 per cent of *In* households; but very little of this meat was on hand for use in the late spring. Inquiries of households slaughtering swine revealed the fact that in less than 5 per cent of such households were there any supplies of home-cured pork on hand on May 16, 1916, these being principally salt pork. The home-produced pork, therefore, did not appear to enter in significant degree into the spring food supply of the households in either village.

(c) *Poultry.*—Inquiries of households having less than the average income showed that 40 per cent of the *Ny* households and 25 per cent of the *In* households either did own poultry during the winter

and spring months ending May 30, 1916, or were owning poultry at the time of the canvass (from June 1 to June 10, 1916). The average number of poultry consumed per household during the preceding year was 22 in *Ny* and 8 in *In*. The per cent of *Ny* households reporting consumption of home-owned poultry during the spring of 1916 was 19, as against 3 per cent for *In*. Thirty-two per cent of *Ny* households reported a fairly regular supply of eggs from home-owned hens as against 21 per cent of *In* households. It appears that the advantage in the supplies of home-produced poultry and eggs during the preceding winter and spring lay distinctly with *Ny* households.

(d) Gardens.—Home gardens were much more generally found in the village of *In* than in *Ny*. Nearly 92 per cent of the *In* households had gardens planted on June 1, 1916, as against less than 23 per cent of *Ny* households. The opportunity afforded by suitable garden space was decidedly better in *In* than in *Ny*; practically every home in *In* had a good-sized garden plot, whereas many of the *Ny* households had no suitable space at all.

It was quite evident, however, that home gardens contributed but very slightly, if at all, to the food supply of households in either village during the spring of 1916. With the exception of an occasional ("rare" is perhaps a more accurate term) "mess" or dish of greens, a very little lettuce, and a few young onions, the gardens had yielded no supplies during 1916 up to about June 1. Not until after June 15 did garden produce become abundant, a condition that was somewhat contrary to the expectation of the authors, who had anticipated finding considerably earlier garden production in this section. The principal reason for this tardiness appears to be the fact that gardens in mill villages are usually planted later than gardens elsewhere in this section. Difficulty in getting the ground prepared early enough, owing in part to the fact that the long hours of work in the mill leave no available daylight for gardening until well along in the spring, lack of initiative in making other preparations, and possibly other causes, apparently almost preclude good early spring gardens in most of the mill villages studied, including *Ny* and *In*, although climatic conditions ordinarily are such that gardens can be made to yield supplies of early varieties of vegetables during May and even in April. Aside from a half dozen households reporting that they had had radishes, lettuce, or English peas, only about one-third of the *In* households reported that they had had greens or young onions even occasionally and in small quantities before this date. In *Ny* the proportion was even less.

Summing up the principal differences in availability of food supplies during the spring of 1916 as between *Ny* and *In*, it may be said

that (1) supplies of fresh milk, butter, green vegetables, and fresh fruit were available to a greater degree (better distributed among the households) in *Ny* than in *In*, because, in the farm territory adjacent to *Ny*, there was a larger production of these articles of food and because *Ny* occupied a more advantageous location as a market for such products, and (2) that a supply of fresh meat was available to a greater degree in *Ny* than in *In* because of the existence of a fresh-meat market in *Ny* all the year around. In practically all other respects the availability of food supplies appeared to be generally similar in the two villages.

The conditions outlined above are reflected in a comparison of the total food supplies during the 15-day period May 16-30, 1916, of households in *Ny* and *In*. In this comparison (Tables XIII and XIV) in order to eliminate as far as practicable the influence of differences in economic status, only those households with less than the average of incomes²¹ have been considered.

In Table XIII is shown the average quantity of each article of food for all the households considered. Inasmuch as an "average" affords no idea of the vitally important factor of distribution, we have prepared Table XIV in which are shown the percentages of the households in each village which had various quantities of each article of food, such quantities being expressed in terms of the average for all households in order to shorten the statistical presentation. The two tables should be considered together in comparing the supplies of any article of food.

This comparison indicates that during the 15-day period, May 16-30, 1916, (1) supplies of fresh meat, fresh milk, green vegetables, and fresh fruit were more abundant (i. e., better distributed) in *Ny* than in *In* households; (2) supplies of cured and canned meats, salt pork, butter, flour, lard, and lard substitutes, and dried peas and beans in *Ny* households were quite similar to those in *In* households; and (3) supplies of eggs, corn meal, Irish potatoes, and most canned goods were more abundant in *In* than in *Ny* households. Other differences in the supplies of articles of food occurring either rarely or in small quantities are indicated.

²¹ The average half-month family income per adult male unit for all households in *Ny* and *In* was \$7.99. Hence all households with such incomes under \$8 were considered.

TABLE XIII.—*Approximate average daily supply of various foods in households of cotton-mill operatives during the 15-day period May 16-30, 1916, compared for the villages of Ny and In, South Carolina.*

[All households considered have incomes of less than the average of the total households of both villages (less than \$8 per adult male unit during the 15-day period).]

Article of food.	Average supply per adult male unit in grams per day.		Ratio of supply of In to Ny households.
	Ny. ^a	In. ^b	
Fresh meats.....	34	7	0.21
Cured lean meats.....	24	20	.83
Canned meats.....	19	17	.89
Eggs.....	34	50	1.47
Fresh milk.....	426	457	1.07
Preserved milk.....	1	3	3.00
Butter.....	26	30	1.15
Cheese.....	3	(c)	.....
Dried peas and beans.....	32	25	.78
Canned peas and beans.....	2	4	2.00
Wheat flour.....	358	358	1.00
Wheat bread, cakes, and crackers.....	13	18	1.38
Corn meal.....	139	180	1.30
Grits.....	4	2	.50
Canned corn.....	3	6	2.00
Rice.....	4	5	1.25
Salt pork.....	54	53	.98
Lard and lard substitutes.....	41	40	.98
Green string beans.....	11	1	.09
Canned string beans.....	1	4	4.00
Green vegetables.....	88	46	.52
Canned vegetables.....	36	36	1.00
Fresh fruits.....	40	20	.50
Dried fruits.....	12	8	.67
Canned fruits.....	10	20	2.00
Irish potatoes.....	34	60	1.76
Raw sweet potatoes.....	0	0	.....
Canned sweet potatoes.....	5	3	.60
Sugar.....	46	39	.85
Sirup.....	17	17	1.00
Jellies and jams.....	3	9	3.00
All other foods (cost in cents).....	2	1	.50

^a 48 households composed of 210.3 adult male units. Data were available for the following number of adult male units for the foods specified: Salt pork and dried fruits, 206.2; Irish potatoes, 205.7; wheat flour, 160.2; corn meal, 204.0.

^b 67 households composed of 287.4 adult male units. Data were available for the following number of adult male units for the foods specified: Fresh milk and butter, 257.4.

^c Less than 0.5 gram.

TABLE XIV.—Percentages of cotton-mill operatives' households having supplies of various articles of food in different quantities per adult male unit per day, compared for the mill villages of Ny and In, South Carolina.

[All households considered have incomes of less than the average for the two villages.]

Article of food.	Village.	Average daily supply per adult male unit.	Per cent of households whose average daily supply per adult male unit was—			
			None.	Some, but less than one-third of the average of all households.	One-third or more, but less than the average of all households.	The average or more than the average of all households.
		Grams.				
Fresh meats.....	Ny.....	34	31.2	6.2	16.7	45.8
	In.....	7	67.2	10.4	13.4	9.0
Cured lean meats.....	Ny.....	24	37.5	4.2	27.1	31.2
	In.....	20	46.3	6.0	14.9	32.8
Canned meats.....	Ny.....	19	22.9	10.4	37.5	29.2
	In.....	17	35.8	3.0	31.3	29.9
Eggs.....	Ny.....	34	31.2	4.2	31.2	33.3
	In.....	50	7.5	6.0	26.9	59.7
Fresh milk.....	Ny.....	426	8.3	10.4	45.8	35.4
	In.....	457	34.3	0.0	30.2	36.5
Preserved milk.....	Ny.....	1	87.5	2.1	2.1	8.3
	In.....	3	74.6	1.5	1.5	22.4
Butter.....	Ny.....	26	16.7	10.4	33.3	39.6
	In.....	30	14.9	16.4	21.4	46.3
Cheese.....	Ny.....	3	87.5	2.1	0.0	10.4
	In.....	(a)	97.0	0.0	0.0	3.0
Dried peas and beans.....	Ny.....	32	25.0	14.6	20.8	39.6
	In.....	25	32.8	7.5	20.9	29.9
Canned peas and beans.....	Ny.....	2	85.3	0.0	0.0	14.9
	In.....	4	85.1	0.0	0.0	14.9
Wheat flour.....	Ny.....	358	6.2	0.0	43.7	29.2
	In.....	358	18.5	5.1	32.3	45.2
Wheat bread, cakes, and crackers.....	Ny.....	13	18.7	12.5	33.3	35.4
	In.....	18	25.4	6.0	22.4	46.3
Cornmeal.....	Ny.....	139	29.8	4.3	29.8	36.2
	In.....	180	23.9	0.0	17.9	61.2
Grits.....	Ny.....	4	87.5	0.0	0.0	12.5
	In.....	2	95.6	0.0	0.0	4.5
Rice.....	Ny.....	4	75.0	0.0	0.0	25.0
	In.....	5	70.2	0.0	0.0	29.9
Salt pork.....	Ny.....	54	4.3	4.3	57.2	34.0
	In.....	53	10.4	0.0	41.8	47.8
Lard and lard substitutes.....	Ny.....	41	6.2	4.2	52.1	37.5
	In.....	40	10.4	3.0	37.3	49.3
Green string beans.....	Ny.....	11	68.7	0.0	0.0	31.2
	In.....	1	100.0	0.0	0.0	0.0
Canned string beans.....	Ny.....	1	97.9	0.0	0.0	2.1
	In.....	4	89.5	0.0	0.0	10.5
Green vegetables (bought).....	Ny.....	88	14.6	12.5	39.6	33.3
	In.....	46	22.7	16.7	37.9	22.7
Other canned vegetables.....	Ny.....	36	20.2	2.1	22.9	45.8
	In.....	26	26.9	7.5	28.4	37.3
Fresh fruits.....	Ny.....	40	25.0	10.4	20.8	43.7
	In.....	20	43.9	9.1	28.8	18.2
Dried fruits.....	Ny.....	12	53.2	0.0	17.0	29.8
	In.....	8	70.2	1.5	6.0	22.4
Canned fruits.....	Ny.....	10	66.7	0.0	2.1	31.2
	In.....	20	56.7	0.0	1.5	41.8
Irish potatoes.....	Ny.....	34	45.8	4.2	20.8	29.2
	In.....	60	53.7	3.0	3.0	40.3
Fresh sweet potatoes.....	Ny.....	0	0.0	0.0	0.0	0.0
	In.....	0	0.0	0.0	0.0	0.0
Canned sweet potatoes.....	Ny.....	5	81.2	0.0	0.0	18.7
	In.....	3	88.1	0.0	0.0	11.9
Sugar.....	Ny.....	46	10.4	4.2	45.8	39.6
	In.....	30	9.0	9.0	43.3	38.8
Sirup.....	Ny.....	17	68.7	0.0	2.1	29.2
	In.....	17	64.2	0.0	0.0	35.8
Jellies and jams.....	Ny.....	3	70.2	0.0	4.3	25.5
	In.....	9	40.3	1.5	0.0	58.2

(a) Less than 0.5 gram.

From the foregoing considerations it clearly appears that the character of the household food supply in the two villages was considerably influenced by the availability of certain foods, notably fresh meats, fresh milk, green vegetables, and fresh fruits, all of which were relatively less abundant or less equally distributed in *In* than in *Ny*. It is clear also that these differences in the food supply of *Ny* and *In* households are quite similar to the differences which, as already reported, we found to exist in the food supply of nonpellagrous and of pellagrous households.²²

We have here, therefore, a striking and significant correspondence between the differences in the availability of certain foods (and thus, it is permissible to assume, in the character of the diet) in the two villages, on the one hand, and the difference with respect to the incidence of pellagra among their households on the other. Since between these two villages no other differences to which significance could properly be attached were disclosed by our study, the conclusion would seem to be warranted that the difference in the availability of food supplies above summarized was the outstanding determining factor in relation to the marked difference in the incidence of the disease.

Thus, of all the factors we have studied in relation to differences in pellagra incidence among our villages, the factor of food availability is the only one in connection with which significant evidence of such relationship was found. The conclusion would, therefore, seem to be warranted that in this factor we have the explanation for the differences among the villages studied in the incidence of the disease, so far as this incidence was a reflection of community conditions.²³

²² Goldberger, Wheeler, and Sydenstricker, 1918: also 1920a.

²³ If such factor as food availability operated to effect the rate of pellagra incidence in our villages, then it may be reasonably expected that in the locality with exceptionally unfavorable conditions of food availability, family income would be less efficient as a protective factor than in other similar localities with better conditions of food availability. With a view of testing this we prepared the following table, in which the pellagra incidence rate for each of our income classes of *In* village in which, we believed food availability conditions were least favorable, is compared with that of a group of five villages in which conditions in respect to food availability are believed to have been better. It may be seen that (1) the incidence rate in those income groups in which a significant number of cases occurred was decidedly higher in *In* village; and (2) that the curve of incidence shows a highly suggestive tendency to extend to a higher plane of income in *In* village than in the group of five villages. The indications thus afforded would, therefore, appear to be consistent with and to bear out the assumption which the table was prepared to test.

Pellagra incidence according to family income in In mill village compared with that in a group of five other mill villages of South Carolina during 1916.

[Rate per 1,000 of population classified according to a half-month's family income per adult male unit in May or June, 1916. Only definite cases of pellagra with onset after a residence of not less than 30 days in specified village or in a member of group considered.]

Income group.	Number of persons.		Number of pellagrins.		Rate per 1,000 of population.	
	<i>In</i>	Five other villages.	<i>In</i>	Five other villages.	<i>In</i>	Five other villages.
All incomes.....	651	2,785	43	53	66	19
Under \$6.....	265	856	27	29	102	34
\$6-\$7.99.....	167	750	10	15	60	21
\$8-\$9.99.....	118	506	5	6	42	12
\$10-\$13.99.....	74	499	1	2	14	4
\$14 and over.....	26	194	0	1	0	5

^a Village *Ny* not considered, no pellagra, as above restricted, having occurred in 1916.

IV. DISCUSSION.

From the data presented in the foregoing pages it is evident that a variety of factors of an economic nature, through their effect on the character of the household diet, had an important influence on the incidence of pellagra in the communities studied. Among these factors family income and food availability stand out most conspicuously.

As has been seen, the data presented reveal a very marked inverse correlation between family income and the incidence of the disease. When it is recalled that the range of income enjoyed by our families was small (see pp. 2683, 2685), that the amount of income of even the highest of our income classes was actually quite low (but few had annual incomes of over \$1,000), the reduction of incidence to the point of practical disappearance of the disease in this income class is all the more striking and significant. It would seem quite impressively to indicate that the occasional occurrence of the disease in well-to-do individuals must be regarded as a relatively quite exceptional occurrence, and that the explanation of such occurrence must be sought in circumstances of a special or exceptional character.

Cases in the well-to-do, instances of which have been observed repeatedly since the time of Strambio (1796), are of more than ordinary interest because of the perplexity and confusion to which they tend to give rise with respect to the etiology of the disease. Favorable economic status of the individual tends to create the presumption that diet can have little or no etiological significance, since there can be no question of the ability of such individual to provide himself with a liberal diet. Natural as this presumption may be under the circumstances, it nevertheless involves danger of serious error. This results from the implied assumptions that because of financial ability, not only was a satisfactory diet available, but that such was also consumed. Even granting what is not necessarily the case, that financial ability to provide may be assumed to be invariably synonymous with the actual provision of a good diet²⁴ and that a liberal diet was actually available to the individual, it by no means follows that such diet was in fact consumed. For such assumption would totally ignore the existence of individual likes and dislikes, more or less marked examples of which may be observed at almost any family table.

A great variety of causes may operate to bring about individual peculiarities of taste with respect to food. They may have their origin in the seemingly inherent human prejudice against the new and untried food or dish; they may date from some disagreeable

²⁴ In this connection the following from Roussel (1866, pp. 430-431) is of interest: "Almost all the individual histories, found in the literature of pellagra in the well-to-do, are remarkable because of this constant fact * * * namely, that because of some misfortune or by reason of some unwholesome trait (*mauvaises habitudes*), such as avarice, these well-to-do or wealthy pellagrins subsisted exactly as did the poor pellagrins about them."

experience associated with a particular food; they may arise as the result of ill-advised, self-imposed, or professionally directed dietary restrictions in the treatment of digestive disturbances, kidney disease, etc.; they may originate as a fad; and in the insane they may arise because of some delusion such as the fear of poisoning, etc.

The individual peculiarities of taste which may thus arise have a significance in relation to pellagra that has been but little appreciated until recently (Goldberger, 1914 and 1916). In much the greater proportion of a moderate number of cases in well-to-do individuals with a good diet presumably available, coming under our observation, a significant eccentricity in diet could readily be determined (unpublished observations). Vedder (1916, pp. 157-160) and Roberts (1920) have reported observations of a similar character. It is of interest to note also that analogous facts have been recorded in connection with beriberi (see Vedder, 1913, pp. 154, 156, 171, 180, 184). Therefore, in seeking to explain cases of pellagra in individuals believed to have a good diet available, this factor must be given due consideration.

With conditions (including labor supply) in the cotton-milling industry substantially stable, family income may, in general, be expected to fluctuate but little from year to year. With conditions unsettled, family income may either fall or rise very considerably; a depression, accompanied by increasing unemployment and, possibly, reductions in wage rates will be reflected in a reduced family income, while industrial prosperity, with a diminution of unemployment and, possibly, increased wage rates, will be reflected in larger family income. In the former event we may have a diminution in family income to the point of inability to provide the family with a proper diet, with a consequent danger of the development of pellagra and thus with a more or less marked rise in the incidence rate of the disease. In the latter event we have the opposite effects, with a tendency to a reduction in or practical disappearance of the disease. In this we have, we believe, an illustration of the manner of operation of one of the most powerful factors in relation to the endemic and epidemic prevalence of the disease. Through its effect on diet, economic status is also an important element in, if not the entire explanation of, the oft repeated observation of the occurrence of a marked increase in the incidence or the development of an epidemic of the disease following on crop failure²⁵ (Weiss, 1914, p. 327) or other cause of "hard times," as was actually observed in the United States in 1915, following depression consequent on the outbreak of the World War in 1914, and as there is some reason to fear may again be observed in the spring of 1921 if the present depression,

²⁵ It should not be forgotten that overproduction, by glutting the market, may affect family income (of the farmer) as disastrously as may crop failure.

especially in the price of cotton and cotton-textile manufacturing, continues.

At this juncture it may be well to point out that family income should always be considered in connection with living (food) costs if confusion and error are to be avoided. It is the purchasing power of family income that is significant and not necessarily its absolute amount.

Although economic status (as typified by family income) is, ordinarily, perhaps the most important factor (particularly in industrial communities) in relation to fluctuation in incidence of pellagra in different years,²⁶ marked changes in food availability conceivably play a similar rôle (particularly in agricultural communities). The reported occurrence, in some localities, of a sharp increase in the prevalence of the disease following an epizootic among swine or cattle (Niederman, Konrad, and Farkas, 1898) or after the loss of these through floods, we believe, is to be explained, in part, at least, in this manner.

The very great importance of food availability in relation to pellagra prevalence seems heretofore not to have been very clearly recognized. Under some circumstances, as we have shown, this factor may operate notably to affect the character of the diet and thus the incidence of the disease. Our data dealt with differences in availability between localities of relatively small area, but it is readily conceivable that analogous differences may exist between areas of great extent such as there is reason to believe actually is the case between the northern and southern parts of the United States. This difference is probably an important factor (together with the well-known difference in dietary habit, Sydenstricker, 1915) in the notable inequality in the incidence of the disease in these two sections of the country.

The results of the present study clearly suggest fundamental lines along which efforts looking to the eradication of the disease should be directed, namely, (1) economic, by improvement of economic status (income), and (2) food availability, by improvement in availability of food supplies.

Measures for improving the economic status of those people most subject to the disease, are in the main, outside of the sanitarian's sphere and but little subject to his influence. While much the same may be said to apply to the conditions of food availability, this field is more easily accessible, both directly and indirectly, to his activities and influence. Thus, for instance, by avoiding ill-considered regulations governing milk production he can, negatively at least, favor an adequate supply of this invaluable food. Furthermore, he can and

²⁶ We hope to consider the relation of economic status to the course of the disease from year to year in a separate paper.

should aid in improving the conditions of food availability by lending his powerful influence in support of and, by cooperating with, the agencies at work in this field, in their efforts to stimulate milk production (particularly through cow ownership) and to induce the farmer to adopt a suitable system of crop diversification.

And in this connection it may perhaps be remarked that certain preliminary observations have created in our minds a rather strong suspicion that the single-crop system as practiced in at least some parts of our southern States, by reason of apparently unfavorable conditions of food supply and of other conditions of an economic character bound up therein, will be found indirectly responsible for much of the pellagra morbidity and mortality with which local agricultural labor is annually afflicted.

Although considerable study will be required to determine definitely the factors responsible for the high incidence of the disease in the rural areas in question, it would, nevertheless, seem to be the part of wisdom to make an earnest effort to improve conditions in the ways suggested above.

V. SUMMARY AND CONCLUSIONS.

1. In the present paper are reported the results of the part of the pellagra study of cotton-mill villages, during 1916, dealing with the relation of conditions of an economic nature to the incidence of pellagra. It is the first reported study in which the degree of the long-recognized association between poverty and pellagra incidence is measured in a definite, purely objective manner.

2. The study was made among the white mill operatives' households in seven typical cotton-mill villages of South Carolina. Pellagra incidence was determined by a systematic, biweekly, house-to-house canvass and search for cases, only active cases being considered. Information relating to household food supply, family income, etc., was secured by enumerators for a sample section of the period April 16 to June 15, assumed to be representative of the season during which the factors favoring the production of pellagra were assumed to be most effective.

3. Family income was made the basis of classification according to economic status, the Atwater scale for food requirements being used for computing the size of families in comparing their incomes.

4. In general, pellagra incidence was found to vary inversely according to family income. As the income fell, the incidence of the disease rose and showed an increasing tendency to affect members of the same family; as the income fell, incidence fell, being reduced almost to the point of practical disappearance in the highest of our income classes, although the income enjoyed by this class was comparatively quite low.

5. The inverse correlation between pellagra incidence and family income depended on the unfavorable effect of low income on the character of the diet; but family income was not the sole factor determining the character of the household diet.

6. Differences in incidence among households of the same income class are attributable to the operation of such factors as tend to determine the amount and proportion of family income available for the purchase of food, the intelligence and ability of the housewife in utilizing the available family income, and to the differences among households with respect to availability of food supplies from such sources as home-owned cows, poultry, gardens, etc.

7. Differences in incidence among villages whose constituent households are economically similar, are attributable to differences among them in availability of food supplies resulting from differences (a) in the character of the local markets, (b) in the produce from adjacent farm territory, and (c) in marketing conditions.

8. The most potent factors influencing pellagra incidence in the villages studied were (a) low family income, and (b) unfavorable conditions regarding the availability of food supplies, suggesting that under the conditions obtaining in some of these villages in the spring of 1916 many families were without sufficient income to enable them to procure an adequate diet, and that improvement in food availability (particularly of milk and fresh meat) is urgently needed in such localities.

ACKNOWLEDGMENTS.

We desire to express our grateful appreciation of the valuable cooperation accorded us by the medical practitioners, mill officials, and families of the mill operatives in the localities studied. We are indebted also to Statistician W. I. King, United States Public Health Service, for helpful criticisms and suggestions and assistance in the preparation of some of the tables.

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INSTITUTE ON VENEREAL-DISEASE CONTROL AND SOCIAL HYGIENE.

Washington, D. C., November 22 to December 4, 1920.

With the cooperation of the Interdepartmental Social Hygiene Board and the American Social Hygiene Association, the United States Public Health Service will conduct an Institute on Venereal Disease Control and Social Hygiene in Washington, D. C., November 22 to December 4, 1920. The institute will be held in the New National Museum of the Smithsonian Institution and will immediately precede the All-America Conference on Venereal Diseases, which will meet December 6-11.¹

Aim of the Institute.

During the years immediately preceding and following the World War, rapid progress has been made in the United States in the control of venereal diseases. This progress has been due to an increase in knowledge and experience and to an increase in the number of persons devoting their time to the many and varied aspects of the problem. Progress has been so rapid that there are many persons employed in one capacity or another in the attack upon venereal diseases who feel keenly a need for more information in the various sciences which have contributed to recent knowledge and experience. Others desire to get into personal contact with those who are recognized as the highest authorities on various scientific and professional phases of the problem.

Medicine, surgery, biology, psychology, and sociology now have much to contribute to the understanding of this most complex health problem, and there are now available, as there have never been before, eminent specialists in these various fields of knowledge from whom instruction may be obtained.

In conducting this institute on venereal disease control it has been the aim of the Public Health Service to organize a staff of instructors comprising the ablest men and women in those subjects related to the control of venereal diseases, so that health officers,

¹ An account of the All-America Conference on Venereal Diseases, with an outline program, was published in the *Public Health Reports* September 17, 1920, pp. 2202-2204.

private practitioners, educators, psychologists, sociologists, and others concerned may come for a short period of intensive work and supplement their knowledge in such a way as to make themselves more efficient in their work.

Calendar.

November 22, 9 a. m.	Registration.
	Opening assembly.
November 23, 9 a. m.	Lectures begin.
November 25	Dinner and recreation (Thanksgiving Day).
December 4	Final lectures and reviews.

List of Courses.

[Courses will be conducted at 9, 10, and 11 a. m., and at 1.30, 2.30, and 3.30 p. m.]

FULL COURSES.

- I. The diagnosis and treatment of syphilis.
- II. The diagnosis and treatment of gonorrhea.
- III. Advanced course in the treatment of syphilis and gonorrhea.
- IV. The delinquent and the law.

HALF COURSES.

- V. Diagnosis of the mental condition of delinquents.
- VI. Sex in education.
- VII. Protective work for girls.
- VIII. Clinic nursing and social work.
- IX. Heredity and eugenics.
- X. Sociology and social hygiene.
- XI. Methods of public education.
- XII. Methods of law enforcement.
- XIII. Sex psychology.
- XIV. Clinic management.

Admission.

Officers of State and city boards of health, clinicians, laboratory technicians, nurses, social workers, police matrons, policewomen, superintendents of eleemosynary institutions, judges and probation officers of courts of domestic relations and juvenile courts, chiefs of police, medical officers of commercial institutions, urologists, dermatologists, gynecologists, neurologists, psychologists, and officers of medical and social organizations are eligible for admission to the institute.

Registration.

Applications for admission to the institute should be made immediately in order that the Public Health Service may intelligently prepare plans for adequate lecture halls and staff of instructors.

Applications will not be accepted after *November 15* without the special consent of the director. Applications, however, may be

mailed immediately with the understanding that they may be withdrawn if unforeseen conditions later prevent attendance.

No tuition fee is charged. The institute has been made possible by the generous cooperation of members of the faculty.

The following is a statement of the Surgeon General:

Within a comparatively short time, those persons responsible for the public health and welfare have become aroused to the seriousness of the venereal diseases and to related problems of social health. As a result there has been a rapid development of expert and technical knowledge, both through special research and through the cumulative experience of those who have had to deal with the specific details that these problems present. Unfortunately, this knowledge is too largely confined to a relatively few specialists. The thousands of earnest workers in dispensary and clinic, in court and institution, have not had the time nor the guidance to become familiar with it.

Furthermore, because of the great demands upon the workers in these fields, specialization has gone so far as to separate many who ought to be working in the closest cooperation and in perfect accord as to aims and methods.

The need for instruction of a kind that only these specialists can give, the need for inspiration that only the leaders in their respective fields can contribute, and the need for exchange of thought, viewpoint and experience—all these needs can admirably be met by the gathering together of the men and women who are the agents of society in promoting its health and welfare.

Such gatherings are provided in the All-America Conference on Venereal Diseases and by the Institute on Venereal Disease Control and Social Hygiene immediately preceding. The one is primarily a conference, the other is essentially a school for intensive study. This most advantageous combination of events affords an unusual opportunity for physicians, social workers, and all others engaged in the work of venereal-disease control.

HUGH S. CUMMING,
Surgeon General, United States Public Health Service.

For further information regarding the Institute, address the United States Public Health Service, 16 Seventh Street SW., Washington, D. C. For detailed information regarding the All-American Conference, address the Executive Secretary, All-America Conference on Venereal Diseases, 411 Eighteenth Street NW., Washington, D. C.

PRINCIPAL CAUSES OF DEATH, AUGUST AND SEPTEMBER, 1920.

The accompanying table is reprinted, by permission, from the Statistical Bulletin of the Metropolitan Life Insurance Co. for October, 1920. The figures are based on a strength of approximately 13,000,000.

Although these rates apply to a selected group, they give comparative mortality conditions for the periods covered.

Death rates (annual basis) per 100,000 for principal causes, August and September, 1920, and year 1919.

[Industrial Department, Metropolitan Life Insurance Co.]

Cause of death.	Rate per 100,000 lives exposed.		
	Sept. 1920.	Aug. 1920.	Year 1919.
Total, all causes.....	759.5	817.9	1,063.0
Typhoid fever.....	10.9	8.2	7.3
Measles.....	1.4	3.2	3.5
Scarlet fever.....	1.9	3.2	3.9
Whooping cough.....	4.8	6.6	3.2
Diphtheria.....	12.0	12.1	23.9
Influenza.....	4.2	5.8	93.9
Tuberculosis (all forms).....	111.3	120.1	153.5
Cancer.....	66.5	67.4	67.0
Meningitis (all forms).....	5.4	6.1	6.4
Cerebral hemorrhage.....	47.7	51.0	59.8
Cranial diseases of heart.....	99.0	95.0	113.9
Pneumonia (all forms).....	28.1	31.7	117.2
Other respiratory diseases.....	11.3	12.1	17.0
Diarrhea and enteritis.....	27.8	30.2	16.9
Bright's disease.....	63.4	60.7	73.5
Puerperal state.....	15.9	20.0	20.0
Suicides.....	5.3	5.9	6.8
Homicides.....	8.4	6.8	6.9
Other external causes (excluding suicides and homicides).....	59.9	76.2	89.4
Traumatism by automobile.....	13.4	14.6	10.7
War deaths.....	(1)	(1)	16.6
All other causes.....	177.3	195.5	184.9

¹ Less than 0.05 per 100,000.

The mortality rate continued low for the month of September. The general rate, 7.5 per 1,000, represents a decline of 8.2 per cent from that for August. It is not only the lowest rate recorded during the first nine months of 1920, but it is stated that it is lower than that for any month on record in the history of the company. The death claims paid per 1,000 policies in force (annual basis) among this group for the years 1918 and 1919 and for the first nine months of 1920 were as follows:

Month.	Year.			Month.	Year.		
	1918	1919	1920		1918	1919	1920
January.....	13.3	19.1	10.5	July.....	10.1	9.2	8.4
February.....	12.6	17.7	16.0	August.....	10.1	8.3	8.4
March.....	14.3	15.7	15.8	September.....	9.6	8.4	7.9
April.....	14.4	13.2	11.1	October.....	18.2	8.2	.....
May.....	12.9	11.2	9.5	November.....	38.9	8.6	.....
June.....	10.5	9.8	9.8	December.....	22.4	9.1	.....

PUBLIC HEALTH ENGINEERING ABSTRACTS.

Report of the Department of Health and Sanitation of the U. S. Shipping Board for the period November 16, 1917, to November 15, 1918.—Lieut. Col. Philip Schuyler Doane, M. C., U. S. A.—*The Military Surgeon*, vol. 47, No. 4, October, 1920, pp. 389–406.

The functions of the Department of Health and Sanitation of the Shipping Board included such measures as were found necessary to govern sanitary conditions for the shipworkers in the yards as well as in their living and eating places and to provide dispensaries and hospitals and medical and sanitary supervision covering all shipyards in the country. In every yard, supervision was necessary in the matter of water supply, housing, drainage, sewage disposal, and general sanitary environment. In the water supply specifications issued to the yards, the department insisted that surface water from streams and lakes should never be used without purification; wherever possible the yards should use a water supply of established purity in a near-by city; shallow wells should be used only when absolutely free from soil or surface contamination; walls of the well should extend above the surface with a provision for drainage that would carry surface water away from the well; bacteriological and chemical analyses should be made at regular intervals by reputable laboratories, copies being sent to the Emergency Fleet Corporation. Not only the source but also the distribution of the water called for close watching.

One of the difficulties frequently encountered was the interconnection between the water mains carrying drinking water and those conveying impure water for industrial use and for fire protection. Where such interconnection was absolutely necessary and was accepted by the Department of Health and Sanitation and the local health authorities, an improved type of connection, consisting of two check valves, three pressure gauges, and two blow-offs, was specified, and monthly examinations were made to test the tightness of these check valves.

The war against the disease-carrying mosquito involved expenditures of \$800,000, practically all being contributed by various outside organizations.

The effectiveness of the department's work is shown by the fact that in no case has a general cessation of work due to disease occurred in any of the yards, and there was no epidemic of typhoid, smallpox, or other virulent disease, with the exception of influenza.

Sanitary conditions in Vladivostok.—Lieut. A. S. Judy, M. C., U. S. N.—*Medical Bulletin*, vol. 14, No. 4, October, 1920, p. 9.

The population of Vladivostok was 60,000 before the war, and has increased to about 400,000, owing to the presence of refugees and

allied troops. Conditions are most conducive to the spread of disease. An epidemic, such as cholera, would be difficult to arrest. The ignorant defecate and urinate on almost any street at any hour, the material remaining until washed away by melting snow or rains. Water is obtained from wells, both public and private. In November, 1919, 70 cases of typhoid were traced to a polluted well water. Only 10 per cent of the city is sewered. Typhus fever is endemic, several thousand cases occurring in 1920. Four hundred cases of cholera occurred in 1919. Food is handled and prepared under very insanitary conditions.

The farm woman tells her own story.—Florence E. Ward—*Domestic Engineering*, vol. 93, No. 4, October 23, 1920, p. 161.

The United States Department of Agriculture made a survey recently of 10,000 farm houses regarding sanitary conditions, with results as shown in the following table.

Section of country.	Without running water (necessary to carry).		With running water.	Power machinery.	Water in kitchen.	Sink and drain.	Outdoor toilet.	Bath tub.
	Per cent.	Distance carried.						
Eastern.....	54	<i>Feet.</i> 23	<i>Per cent.</i> 39	<i>Per cent.</i> 12	<i>Per cent.</i> 67	<i>Per cent.</i> 80	<i>Per cent.</i> 87	<i>Per cent.</i> 21
Central.....	68	41	24	29	47	52	93	18
Western.....	57	65	36	22	18	44	86	23
Average.....	61	39	32	22	48	60	90	20
Number of records...	6,511	6,708	9,320	9,080	6,949	9,334	9,580	6,784

Septic tanks for unsewered districts.—C. Edward Keefer, Engineer, Highways Department, Baltimore, Md.—*Public Works*, vol. 49, No. 17, October 23, 1920, p. 388.

In view of the annexation by the city of Baltimore in 1919 of about 60 square miles, a considerable area of which was unsewered, it has been found advisable to install temporary septic tanks treating the sewage from various districts in this area. Septic-tank installations were decided upon in view (1) of the greater supervision required for Imhoff tanks, which are often erratic in operation; (2) the removal of sludge by carts, thereby eliminating one of the chief advantages for Imhoff tanks; and (3) the greater cost of Imhoff tank installations. The design of the larger septic tanks is based on a minimum flow of 80 gallons per capita per day, a detention period of 8 hours with a foot of sludge in the shallower end of the tank, assuming an operating period of 18 out of 24 hours.

Studies on the corrosive action of chlorine-treated water.—George L. Clark and R. B. Iseley, Vanderbilt University, Nashville, Tenn.—*Journal of Industrial and Engineering Chemistry*, vol. 12, No. 11, November, 1920, pp. 1116-1122.

This paper, as a preliminary to more practical work on the corrosive action upon living organisms and upon metal containers and pipes, discusses (a) the solution of chlorine in water under (1) methods of analysis; (2) equilibrium in the system; (3) effect of iron on equilibrium; (4) interpretation of results; and (b) corrosion of iron and steel under (1) nature and extent; (2) interpretation; (3) secondary effects. Tests were made with low-carbon steel bars of similar composition immersed in solutions of Cumberland River water, city reservoir water, which is simply the river water treated with alum in settling tanks, and distilled water. The results showed that the corrosive action is greater in the light than in the dark, owing to the greater completeness of reactions involving the decomposition of HOCl in light to form HCl and oxygen. It was also found that corrosion usually increased with increase in chlorine content in the order: river, reservoir, distilled water.

DEATHS DURING WEEK ENDED OCT. 30, 1920.

[From the "Weekly Health Index," Nov. 2, 1920, issued by the Bureau of the Census, Department of Commerce.]

Deaths from all causes in certain large cities of the United States during the week ended Oct. 30, 1920, infant mortality (per cent), annual death rate, and comparison with corresponding week of preceding years.

City.	Population Jan. 1, 1920, subject to revision.	Week ended Oct. 30, 1920.		Average annual death rate per 1,000. ¹	Per cent of deaths under 1 year.	
		Total deaths.	Death rate. ¹		Week ended Oct. 30, 1920.	Previous year or years. ²
Akron, Ohio.....	208,435	28	7.0	³ 8.9	17.9	³ 15.9
Albany, N. Y.....	113,344	25	11.5	C 13.0	24.0	C 3.6
Atlanta, Ga.....	200,616	59	15.3	C 13.4	16.9	C 3.9
Baltimore, Md.....	733,856	194	13.8	A 14.9	16.0	A 17.0
Birmingham, Ala.....	178,270	45	13.2	A 17.9	15.6	A 12.9
Boston, Mass.....	747,923	193	13.5	A 15.6	16.1	A 17.8
Bridgeport, Conn.....	143,152	34	12.4	A 13.4	35.3	A 20.4
Buffalo, N. Y.....	506,775	137	14.1	C 11.4	19.7	C 20.9
Cambridge, Mass.....	109,456	27	12.9	A 13.6	14.8	A 13.0
Chicago, Ill.....	2,701,705	498	9.6	A 12.2	17.7	A 15.9
Cincinnati, Ohio.....	401,247	87	11.3	C 11.6	9.2	C 7.9
Cleveland, Ohio.....	796,836	160	10.5	C 9.6	20.6	C 22.9
Columbus, Ohio.....	237,031	52	11.4	C 10.7	19.2	C 10.4
Dallas, Tex.....	158,976	26	8.5	A 13.0	19.2	A 14.3
Dayton, Ohio.....	153,830	22	7.5	C 11.7	9.1	C 14.7
Denver, Colo.....	256,491	72	14.6	A 13.2	11.1	.....
Detroit, Mich.....	993,739	166	8.7	.....	28.3	.....
Fall River, Mass.....	120,485	31	13.4	C 11.7	32.3	C 37.0
Grand Rapids, Mich.....	137,634	28	10.6	C 13.4	25.0	C 17.1
Hartford, Conn.....	138,036	29	11.0	.....	6.9	.....
Indianapolis, Ind.....	314,194	76	12.6	C 11.9	15.8	C 11.3
Jersey City, N. J.....	298,079	77	13.5	C 13.5	24.7	C 15.6
Kansas City, Kans.....	101,177	21	10.8	.....	19.0	.....
Kansas City, Mo.....	324,410	85	13.7	C 15.3	12.9	C 19.1
Los Angeles, Calif.....	576,673	144	13.0	A 11.3	10.4	A 10.5
Lowell, Mass.....	112,479	30	13.9	A 17.1	43.3	A 19.7
Memphis, Tenn.....	162,351	66	21.2	C 18.5	7.6	C 15.1
Milwaukee, Wis.....	457,147	86	9.8	A 10.7	23.3	A 19.1
Minneapolis, Minn.....	380,582	65	8.9	C 9.6	13.8	C 7.2
Nashville, Tenn.....	118,342	44	19.4	C 13.3	20.5	C 13.3
Newark, N. J.....	414,216	76	9.6	C 10.4	18.4	C 19.5
New Bedford, Mass.....	121,217	29	12.5	A 15.2	24.1	A 30.4
New Haven, Conn.....	162,519	25	8.0	C 14.6	16.0	C 13.3

¹ Annual rates per 1,000 population.

² "A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1919.

³ Data are based on statistics of 1915, 1916, and 1917

Deaths from all causes in certain large cities of the United States during the week ended Oct. 30, 1920, infant mortality (per cent), annual death rate, and comparison with corresponding week of preceding years—Continued.

City.	Population Jan. 1, 1920, subject to revision.	Week ended Oct. 30, 1920.		Average annual death rate per 1,000.	Per cent of deaths under 1 year.	
		Total deaths.	Death rate.		Week ended Oct. 30, 1920.	Previous year or years.
New Orleans, La.....	387,219	114	15.4	A 21.3	19.3	A 10.7
New York, N. Y.....	5,620,048	1,082	10.0	C 9.8	15.2	C 15.7
Norfolk, Va.....	115,777	23	10.4		17.4	
Oakland, Calif.....	216,361	46	11.1	A 10.4	4.3	A 15.3
Omaha, Nebr.....	191,601	35	9.5	C 11.0	20.0	C 20.0
Philadelphia, Pa.....	1,823,158	413	11.8	^a 14.1	16.9	^a 14.9
Pittsburgh, Pa.....	588,193	157	13.9	C 13.5	10.2	C 21.1
Portland, Oreg.....	258,288	56	11.3	C 12.8	10.7	C 7.9
Providence, R. I.....	237,595	61	13.4	C 15.6	14.8	C 12.7
Richmond, Va.....	171,667	38	11.5	C 15.4	18.4	C 20.0
Rochester, N. Y.....	295,750	78	13.8	C 9.1	10.3	C 11.8
St. Louis, Mo.....	772,897	175	11.8	C 10.3	14.9	C 7.9
St. Paul, Minn.....	234,680	28	6.2	C 12.5	7.1	C 8.9
Salt Lake City, Utah.....	118,110	29	12.8	A 10.8	13.8	
San Francisco, Calif.....	506,676	110	11.3	C 11.4	8.2	C 6.4
Seattle, Wash.....	315,652	63	10.4	A 8.6	6.3	A 12.1
Spokane, Wash.....	104,204	21	10.5	C 10.0	28.6	C 5.0
Springfield, Mass.....	129,338	23	9.3		21.7	
Syracuse, N. Y.....	171,647	39	11.8	C 15.3	15.4	C 16.0
Toledo, Ohio.....	243,164	57	12.2	A 14.5	15.8	A 16.4
Trenton, N. J.....	119,289	39	17.0	A 15.3	12.8	A 18.4
Washington, D. C.....	437,571	100	11.9	A 15.6	17.0	A 13.8
Wilmington, Del.....	110,168	22	10.4	C 12.9	18.2	
Worcester, Mass.....	179,754	36	10.4	C 6.7	22.2	C 4.3
Yonkers, N. Y.....	100,176	18	9.4	A 12.6	22.2	A 17.1
Youngstown, Ohio.....	132,358	34	13.4		23.5	

^a Data are based on statistics of 1915, 1916, and 1917.

Summary of information received by telegraph from industrial insurance companies for week ended Oct. 30, 1920.

Policies in force.....	44,726,479
Number of death claims.....	6,898
Death claims per 1,000 policies in force, annual rate.....	8

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PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended Nov. 6, 1920.

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

ARKANSAS.		CONNECTICUT—continued.	
	Cases.		Cases.
Cerebrospinal meningitis.....	1	German measles.....	2
Chicken pox.....	4	Influenza.....	15
Diphtheria.....	58	Measles:	
Hookworm.....	1	Pomfret.....	9
Influenza.....	40	Putnam (town).....	41
Malaria.....	147	Putnam (city).....	96
Measles.....	54	Thompson.....	8
Pellagra.....	7	Scattering.....	9
Scarlet fever.....	39	Mumps.....	12
Smallpox.....	4	Pneumonia (lobar).....	9
Trachoma.....	5	Poliomyelitis.....	7
Tuberculosis.....	15	Scarlet fever:	
Typhoid fever.....	31	Bridgeport.....	8
Whooping cough.....	36	Hartford.....	8
		New Haven.....	9
		Scattering.....	49
		Tuberculosis (all forms).....	32
		Typhoid fever.....	14
		Whooping cough.....	52
CALIFORNIA.		DELAWARE. ¹	
	Cases.		Cases.
Cerebrospinal meningitis.....	4	Chicken pox.....	2
Influenza.....	13	Cholera infantum.....	1
Poliomyelitis—Los Angeles.....	1	Diphtheria:	
Smallpox:		Wilmington.....	12
Arroyo Grande.....	8	Scattering.....	2
Escondido.....	13	Measles.....	2
Woodland.....	17	Pneumonia.....	2
Scattering.....	50	Scarlet fever.....	13
Typhoid fever.....	29	Tuberculosis.....	17
		Typhoid fever.....	9
		Whooping cough.....	12
CONNECTICUT.		FLORIDA.	
	Cases.		Cases.
Cerebrospinal meningitis.....	1	Diphtheria.....	18
Chicken pox.....	5	Influenza.....	7
Diphtheria:		Leprosy.....	1
Bridgeport.....	11	Malaria.....	16
Greenwich.....	15	Pneumonia.....	2
Hartford.....	32		
New Britain.....	11		
New Haven.....	13		
Waterbury.....	9		
Scattering.....	45		
Dysentery (bacillary).....	1		

¹ Two weeks.

FLORIDA—continued.		Cases.	IOWA.		Cases.
Scarlet fever.....		6	Diphtheria.....		52
Smallpox.....		9	Influenza.....		1
Typhoid fever.....		3	Polio-myelitis—Cresco.....		1
			Scarlet fever.....		80
GEORGIA.			Smallpox:		
Chicken pox.....		10	Ottumwa.....		24
Conjunctivitis (acute infectious).....		1	Scattering.....		56
Dengue.....		19	Tuberculosis (pulmonary).....		1
Diphtheria.....		61	Typhoid fever.....		8
Dysentery (amebic).....		12			
Dysentery (bacillary).....		4	KANSAS.		
Hookworm.....		21	Cerebrospinal meningitis.....		3
Influenza.....		44	Chicken pox.....		13
Malaria.....		105	Diphtheria.....		285
Measles.....		2	Dysentery (amebic).....		1
Mumps.....		2	Influenza.....		3
Paratyphoid fever.....		4	Measles.....		60
Pneumonia.....		19	Mumps.....		3
Polio-myelitis.....		2	Pneumonia.....		12
Scarlet fever.....		23	Scarlet fever.....		220
Septic sore throat.....		10	Smallpox.....		37
Smallpox.....		7	Tuberculosis.....		50
Trachoma.....		1	Typhoid fever.....		31
Tuberculosis (all forms).....		17	Whooping cough.....		42
Typhoid fever.....		17			
Whooping cough.....		29	LOUISIANA.		
			Cerebrospinal meningitis.....		1
ILLINOIS.			Diphtheria.....		18
Cerebrospinal meningitis.....		5	Influenza.....		32
Diphtheria:			Scarlet fever.....		15
Chicago.....		305	Smallpox.....		8
Evanston.....		12			
Scattering.....		93	MAINE.		
Influenza:			Cerebrospinal meningitis.....		1
Chicago.....		20	Chicken pox.....		16
Scattering.....		1	Diphtheria.....		38
Pneumonia—Chicago.....		88	Influenza.....		3
Polio-myelitis:			Measles.....		47
Chicago.....		5	Mumps.....		2
Elgin.....		1	Pneumonia.....		5
Evanston.....		1	Polio-myelitis—Bar Harbor.....		1
Galesburg.....		1	Scarlet fever.....		15
Lemont.....		1	Tuberculosis.....		5
McLean.....		1	Typhoid fever.....		17
Oak Park.....		1	Whooping cough.....		11
Sangamon County—Woodside Township..		1			
Scarlet fever:			MARYLAND. ¹		
Chicago.....		150	Chicken pox.....		20
Oakford.....		8	Diphtheria.....		71
Springfield.....		18	Dysentery.....		11
Scattering.....		71	Influenza.....		9
Smallpox:			Measles.....		14
Augusta.....		9	Mumps.....		1
Scattering.....		16	Ophthalmia neonatorum.....		1
Typhoid fever:			Pneumonia (all forms).....		27
Chicago.....		12	Scarlet fever.....		35
Scattering.....		22	Tuberculosis.....		46
			Typhoid fever.....		23
INDIANA.			Whooping cough.....		44
Cerebrospinal meningitis—Morgan County.....		1			
Diphtheria.....		125	MASSACHUSETTS.		
Scarlet fever.....		277	Cerebrospinal meningitis.....		3
Smallpox.....		95	Chicken pox.....		119
Typhoid fever.....		57	Conjunctivitis (suppurative).....		11

¹ Week ended Friday.

MASSACHUSETTS—continued.		NEW YORK.	
	Cases.	(Exclusive of New York City.)	Cases.
Diphtheria.....	204	Cerebrospinal meningitis—Colonie.....	1
German measles.....	4	Diphtheria.....	359
Influenza.....	18	Influenza.....	30
Malaria.....	2	Lethargic encephalitis.....	1
Measles.....	394	Measles.....	403
Mumps.....	22	Pneumonia.....	120
Ophthalmia neonatorum.....	18	Poliomyelitis—Big Flats.....	1
Pneumonia (lobar).....	40	Scarlet fever.....	159
Poliomyelitis.....	23	Smallpox.....	9
Scarlet fever.....	138	Typhoid fever.....	43
Septic sore throat.....	3	Whooping cough.....	262
Trachoma.....	3		
Tuberculosis (all forms).....	148		
Typhoid fever.....	22		
Whooping cough.....	76		
MINNESOTA.		NORTH CAROLINA.	
Poliomyelitis.....	3	Chicken pox.....	23
Smallpox.....	17	Diphtheria.....	172
		German measles.....	1
MISSISSIPPI.		Measles.....	36
Diphtheria.....	62	Scarlet fever.....	68
Scarlet fever.....	30	Septic sore throat.....	7
Smallpox.....	4	Smallpox.....	15
Typhoid fever.....	16	Typhoid fever.....	29
		Whooping cough.....	155
MONTANA.		OHIO.	
Diphtheria.....	2	Smallpox—Lima.....	79
Poliomyelitis:		Typhoid fever—Salem, epidemic.	
Grantsdale.....	1	SOUTH DAKOTA.	
Hobson.....	1	Chicken pox.....	7
Scobey.....	2	Diphtheria.....	15
Scarlet fever.....	20	Measles.....	34
Smallpox.....	10	Pneumonia.....	1
Typhoid fever.....	7	Scarlet fever.....	14
		Smallpox.....	7
NEBRASKA.		Typhoid fever.....	6
Cerebrospinal meningitis—Omaha.....	1	Whooping cough.....	3
Chicken pox.....	14		
Diphtheria:		TEXAS.	
McCook.....	8	Diphtheria.....	143
Omaha.....	12	Malaria.....	51
Scattering.....	24	Scarlet fever.....	13
Measles.....	8	Typhoid fever.....	8
Poliomyelitis—Osmond.....	1		
Scarlet fever.....	21	VERMONT.	
Smallpox:		Chicken pox.....	40
Neligh.....	8	Diphtheria.....	17
Scattering.....	26	Measles.....	7
Tuberculosis.....	1	Mumps.....	18
Typhoid fever.....	11	Pneumonia.....	3
Whooping cough.....	4	Scarlet fever.....	13
		Smallpox.....	8
NEW JERSEY		Typhoid fever.....	5
Influenza.....	16	Whooping cough.....	79
Pneumonia.....	64		
NEW MEXICO.		WASHINGTON.	
Chicken pox.....	3	Chicken pox.....	41
Diphtheria.....	31	Diphtheria.....	41
Malaria.....	2	German measles.....	1
Measles.....	9	Influenza.....	4
Mumps.....	2	Measles.....	15
Pneumonia.....	1	Mumps.....	4
Scarlet fever.....	9	Pneumonia.....	1
Tuberculosis.....	69	Scarlet fever.....	23
Typhoid fever.....	3	Smallpox.....	50
Whooping cough.....	32	Tuberculosis.....	5
		Typhoid fever.....	10
		Whooping cough.....	6

WEST VIRGINIA.		WISCONSIN—continued	
Diphtheria:	Cases.	Milwaukee—Continued.	Cases.
Bluefield.....	10	Smallpox.....	13
Scattering.....	33	Tuberculosis.....	13
Measles.....	8	Whooping cough.....	13
Scarlet fever.....	20	Scattering:	
Smallpox:		Cerebrospinal meningitis.....	1
Clarksburg.....	8	Chicken pox.....	54
Sistersville.....	8	Diphtheria.....	92
Typhoid fever.....	1	Influenza.....	12
WISCONSIN.		Measles.....	75
Milwaukee:		Poliomyelitis.....	4
Cerebrospinal meningitis.....	1	Rubella.....	3
Chicken pox.....	7	Scarlet fever.....	111
Diphtheria.....	64	Smallpox.....	69
Influenza.....	1	Tuberculosis.....	18
Measles.....	6	Typhoid fever.....	9
Scarlet fever.....	22	Whooping cough.....	113

Kentucky Report for Week Ended Oct. 30, 1920.

Cases.		Cases.	
Chicken pox.....	6	Poliomyelitis—Barren County.....	1
Diphtheria:		Scabies.....	2
Graves County.....	10	Scarlet fever:	
Lincoln County.....	16	Lincoln County.....	9
Logan County.....	8	Scattering.....	35
McCracken County.....	9	Septic sore throat.....	2
Scattering.....	56	Smallpox:	
Dysentery.....	11	Logan County.....	9
German measles.....	2	Scattering.....	22
Influenza.....	10	Tonsillitis.....	4
Measles.....	3	Trachoma.....	2
Membranous croup.....	2	Tuberculosis.....	12
Mumps.....	4	Typhoid fever.....	33
Paratyphoid fever.....	2	Whooping cough.....	23
Pneumonia.....	23		

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

Tables showing by counties the reported cases of cerebrospinal meningitis, influenza, malaria, pellagra, poliomyelitis, smallpox, and typhoid fever are published under the names of these diseases. (See names of these and other diseases in the table of contents.)

The following monthly State reports include only those which were received during the current week. These reports appear each week as received.

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
1920.										
Connecticut (September).....	3	190	16	3	66	.....	8	130	.....	131
Delaware (August).....	.....	9	.....	1	8	.....	.....	15	1	8
Delaware (September).....	.....	9	.....	.....	.....	.....	.....	12	.....	14
Hawaii (September).....	1	5	12	.....	29	.....	.....	.....	.....	6
Iowa (September).....	1	87	.....	.....	.....	.....	.....	141	110	.....
Kansas (September).....	2	388	14	11	67	2	3	324	91	221
Ohio (September).....	9	707	44	4	122	.....	13	538	141	494
Virginia (September).....	9	411	.....	595	151	21	7	128	109	359

RECIPROCAL NOTIFICATION.

Connecticut, October, 1920.

Cases of communicable diseases referred during October, 1920, to other State health departments by department of health of the State of Connecticut.

Diseases and locality of notification.	Referred to health authority of—	Why referred.
Measles: Pomfret, Conn.....	State Department of Public Health, Boston, Mass.	Four children exposed to a case of measles while in Springfield, Mass., became ill on return home to Pomfret, Conn.
Scarlet fever: New London, Conn..	State Department of Health, Albany, N. Y.....	Onset of disease three days after leaving New York City.
Tuberculosis: Hartford, Conn.....	State Board of Health, Concord, N. H.	Patient, now ill with tuberculosis in Hartford, Conn., resident of Manchester, N. H.
Typhoid fever: Fairfield, Conn.....	State Department of Health, Albany, N. Y.	Onset of disease less than two weeks after leaving Port Jefferson, N. Y.
Danielson, Conn.....	State Board of Health, Providence, R. I.	Onset of disease in Quantung, R. I., patient returning home ill to Danielson, Conn.
Ansonia, Conn.....	State Department of Public Health, Boston, Mass.	Onset of case 14 days after leaving Cheshire, Mass.
Berlin, Conn.....	do.....	Patient visited in Northampton, Mass., while in incubation period of disease.

ANTHRAX.

Lane, Idaho, and Lowell, Mass.

Under date of October 27, 1920, one case of anthrax was reported at Lane, Idaho. During the week ended October 23, one death was reported at Lowell, Mass.

CEREBROSPINAL MENINGITIS.

State Reports for September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Connecticut:		Ohio:	
Fairfield County—		Allen County.....	1
Danbury.....	1	Cuyahoga County.....	1
Hartford County—		Jefferson County.....	1
Hartford.....	1	Hamilton County.....	1
New London County—		Montgomery County.....	2
New London.....	1	Shelby County.....	1
Total.....	3	Summit County.....	2
Iowa:		Total.....	9
Iowa County.....	1	Virginia:	
Kansas:		Alexandria County—	
Montgomery County—		Alexandria.....	1
Coffeyville.....	1	Alleghany County.....	1
Saline County—		Bland County.....	1
Salina.....	1	Henrico County.....	1
Total.....	2	Richmond.....	1
		Henry County.....	1
		Nottoway County.....	1
		Total.....	9

CEREBROSPINAL MENINGITIS—Continued.

City Reports for Week Ended Oct. 23, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of the years 1915 to 1919, inclusive. In instances in which the information is not available for the full five years, the average includes from one to four years.

Place.	Average cases.	1920		Place.	Average cases.	1920	
		Cases.	Deaths.			Cases.	Deaths.
California:				Michigan:			
Los Angeles.....	0	1		Detroit.....	1	2	
Pasadena.....	0	1		New Jersey:			
San Francisco.....	0	1	1	Newark.....	(1)	1	1
Connecticut:				Trenton.....	(1)	1	1
Hartford.....	(1)	1		New York:			
District of Columbia:				New York.....	3	2	
Washington.....	(1)	1		Ohio:			
Georgia:				Dayton.....	(1)	1	
Atlanta.....	0	1		Oregon:			
Illinois:				Salem.....		2	
Chicago.....	3		1	Pennsylvania:			
Indiana:				Philadelphia.....	1	1	
Muncie.....	0	1		Virginia:			
Maine:				Portsmouth.....	0		1
Bangor.....		1		Wisconsin:			
Massachusetts:				Green Bay.....	0	1	1
Methuen.....	0	1	1	Milwaukee.....	1	2	2
Salem.....	0	1		Wausau.....			1

¹ Average less than 1.

DENGUE.

Savannah, Ga.—Week Ended Oct. 23, 1920.

During the week ended October 23, 1920, 39 cases of dengue, with two deaths, were reported at Savannah, Ga.

DIPHTHERIA.

See Telegraphic weekly reports from States, p. 2722; Monthly summaries by States, p. 2725; and Weekly reports from cities, p. 2742.

INFLUENZA.

Ohio Report for September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Ashland County.....	7	Hamilton County.....	1
Belmont County.....	7	Lawrence County.....	19
Butler County.....	1	Licking County.....	3
Cuyahoga County.....	3	Washington County.....	1
Fayette County.....	1	Total.....	44
Franklin County.....	1		

INFLUENZA—Continued.

City Reports for Week Ended Oct. 23, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
California:			Michigan:		
Long Beach.....	1	.....	Highland Park.....	1	1
Los Angeles.....	2	.....	Minnesota:		
Oakland.....	.....	1	Minneapolis.....	1	.....
Riverside.....	2	.....	Missouri:		
Colorado:			Kansas City.....	2	.....
Denver.....	.....	2	St. Louis.....	6	.....
Connecticut:			New Jersey:		
Bridgeport.....	2	.....	Newark.....	4	.....
District of Columbia:			Trenton.....	1	.....
Washington.....	3	.....	New York:		
Georgia:			Jamestown.....	1	.....
Atlanta.....	4	.....	Mount Vernon.....	1	.....
Brunswick.....	7	.....	New York.....	14	5
Rome.....	3	.....	North Tonawanda.....	1	.....
Illinois:			Saratoga Springs.....	8	.....
Chicago.....	16	1	Ohio:		
Danville.....	1	.....	Ashtabula.....	2	.....
Kentucky:			Cleveland.....	2	.....
Lexington.....	1	.....	Pennsylvania:		
Maine:			Philadelphia.....	3	1
Portland.....	1	.....	Texas:		
Maryland:			Dallas.....	2	.....
Baltimore.....	11	1	Vermont:		
Cumberland.....	4	.....	Rutland.....	1	.....
Massachusetts:			Virginia:		
Boston.....	2	.....	Lynchburg.....	5	.....
Fall River.....	2	.....		
Lynn.....	1	.....		

LETHARGIC ENCEPHALITIS.

Connecticut—September, 1920.

During September, 1920, three cases of lethargic encephalitis were reported in Connecticut.

MALARIA.

State Reports for August and September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Connecticut (September):		Ohio (September):	
Fairfield County.....	.....	Butler County.....	1
Greenwich.....	2	Licking County.....	1
Hartford County.....	.....	Montgomery County.....	1
Hartford.....	1	Richland County.....	1
Total.....	3	Total.....	4
Delaware (August):		Virginia (September):	
Kent County.....	.....	Accomac County.....	33
Harrington (town).....	1	Chincoteague.....	7
Kansas (September):		New Church.....	8
Cherokee County.....	.....	Alexandria County—	
Columbus.....	3	Alexandria.....	1
Montgomery County—	.....	Amelia County.....	3
Independence.....	2	Augusta County—	
Shawnee County.....	.....	Waynesboro.....	1
Topeka.....	1	Bath County.....	1
Sumner County.....	.....	Bedford County.....	3
Conway Springs.....	2	Brunswick County.....	23
Wyandotte County—	.....	Lawrenceville.....	2
Kansas City.....	3	Campbell County.....	2
Total.....	11	Itavista.....	2
		Caroline County.....	10
		Charles City County.....	8
		Chesterfield County.....	15

MALARIA—Continued.

State Reports for August and September, 1920—Continued.

Place.	New cases reported.	Place.	New cases reported.
Virginia (September)—Continued.		Virginia (September)—Continued.	
Cumberland County.....	5	Norfolk County.....	4
Dinwiddie County.....	1	Portsmouth.....	49
Elizabeth City County—		Cape Charles.....	16
Phoebe.....	6	Northumberland County.....	9
Essex County.....	2	Nottoway County.....	1
Fauquier County—		Crewe.....	19
Remington.....	1	Pittsylvania County.....	8
Greensville County.....	14	Powhatan County.....	46
Emporia.....	27	Princess Anne County.....	1
Hallfax County.....	2	Prince Edward County—	
South Boston.....	11	Farmville.....	1
Hanover County.....	12	Prince George County.....	1
Henrico County.....	32	Richmond County.....	3
Richmond.....	2	Roanoke County—	
Isle of Wight County.....	17	Falem.....	2
James City County.....	10	Rockbridge County.....	2
Williamsburg.....	3	Lexington.....	2
King and Queen County.....	29	Southampton County.....	8
King William County.....	1	Spotsylvania County.....	2
Lancaster County—		Stafford County.....	2
Irrington.....	4	Surry County.....	18
Louisa County.....	2	Sussex County.....	18
Lunenburg County.....	2	Stony Creek.....	2
Kenbridge.....	1	Warwick County.....	20
Mathews County.....	2	Westmoreland County.....	4
Mecklenburg County.....	14	Wise County—	
Middlesex County.....	15	Norton.....	1
Nansemond County.....	2	York County.....	6
Suffolk.....	10		
Nelson County.....	1		
New Kent County.....	4	Total.....	595

City Reports for Week Ended Oct. 23, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama:			Massachusetts:		
Birmingham.....	1		Boston.....	1	
Arkansas:			Lawrence.....		1
Hot Springs.....	5	1	New Jersey:		
Little Rock.....	9		East Orange.....	1	
California:			Ohio:		
Long Beach.....	1		Norwood.....	1	
Los Angeles.....	1		Oklahoma:		
Georgia:			Oklahoma City.....		1
Atlanta.....	3		Pennsylvania:		
Brunswick.....	10		Philadelphia.....	1	
Macon.....		1	South Carolina:		
Rome.....	4		Charleston.....	1	
Savannah.....	3		Columbia.....	1	
Illinois:			Tennessee:		
Danville.....	1		Memphis.....	2	
Louisiana:			Texas:		
Alexandria.....	15		Dallas.....	42	3
			Virginia:		
			Portsmouth.....	1	

MEASLES.

See Telegraphic weekly reports from States, p. 2722; Monthly summaries by States, p. 2725; and Weekly reports from cities, p. 2742.

PELLAGRA.

Kansas and Virginia Reports for September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Kansas:		Virginia—continued.	
Cowley County—		Henry County—	
Winfield.....	1	Martinsville.....	2
Douglas County—		James City County—	
Lawrence.....	1	Williamsburg.....	1
Total.....	2	Norfolk County—	
Virginia:		Norfolk.....	1
Accomac County.....	1	Scott County.....	1
Bland County.....	1	Southampton County.....	10
Brunswick County.....	2	Washington County.....	1
Elizabeth City County.....	1	Total.....	21

City Reports for Week Ended Oct. 23, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama:			Massachusetts:		
Montgomery.....		1	Beverly.....		1
Georgia:			Worcester.....	1	1
Atlanta.....		1	New York:		
Kentucky:			New York.....		1
Lexington.....		1	North Carolina:		
Louisiana:			Winston-Salem.....	1	1
Alexandria.....	1		South Carolina:		
			Charleston.....		1

PLAGUE.

Human Cases of Plague Reported.

Place.	Period covered.	Cases.	Deaths.	Remarks.
Florida:	1920.			
Pensacola.....	May 31 to Aug. 31.....	10	4	
	Sept. 1 to Nov. 6.....	0	0	
Louisiana:	1919.			
New Orleans.....	Oct. 22 to Dec. 31.....	12	4	
	1920.			
	Jan. 1 to Apr. 30.....	0	0	
	May 1 to Aug. 31.....	7	3	
	Sept. 1 to Nov. 6.....	0	0	
Texas:				
Beaumont.....	June 19 to Aug. 20.....	14	5	
	Aug. 21 to Nov. 6.....	0	0	
Galveston.....	June 8 to Oct. 20.....	16	10	
	Oct. 21 to Nov. 6.....	0	0	
Port Arthur.....	July 7.....	1	1	From Galveston.

PLAGUE—Continued.

Plague-infected Rodents.

Place.	Period covered.	Rodents found plague infected.
Florida:		
Pensacola.....	June 28 to Sept. 19.....	31
	Sept. 20 to Nov. 6.....	0
Louisiana:		
New Orleans ¹	November.....	102
	December.....	206
Texas:		
Beaumont.....	July 1 to Sept. 19.....	122
	Sept. 20 to Oct. 24.....	0
	Oct. 25.....	11
	Oct. 26 to Nov. 6.....	0
Galveston.....	June 21 to Oct. 29.....	60
	Oct. 22 to 27.....	0
	Oct. 30 to Nov. 8.....	0
	Nov. 9.....	1
Port Arthur.....	Oct. 25.....	1

¹ Corrected figures to date.² 6 miles out on road to Port Arthur.

PNEUMONIA (ALL FORMS).

City Reports for Week Ended Oct. 23, 1920.

Place	Cases	Deaths.	Place	Cases.	Deaths.
Alabama:			Illinois:		
Birmingham.....		5	Champaign.....		2
Mobile.....		1	Chicago.....	94	19
Arkansas:			East St. Louis.....	1	
Ft. Springs.....		1	Jacksonville.....	2	
North Little Rock.....		1	Keokuk.....		1
California:			Oak Park.....		1
Fresno.....		1	Peoria.....		1
Long Beach.....	2	1	Rockford.....	1	2
Los Angeles.....	14	4	Rock Island.....	2	
Oakland.....		3	Springfield.....		1
Riverside.....	1		Indiana:		
Sacramento.....	1	1	Elkhart.....	1	1
San Diego.....	1		Gary.....		1
San Francisco.....	3		Indianapolis.....		4
Santa Cruz.....	2		Lafayette.....		3
Colorado:			Muncie.....		3
Pueblo.....		2	Richmond.....		1
Connecticut:			Kansas:		
Bridgeport.....	5	4	Kansas City.....	2	
Bristol.....	1		Topeka.....	1	1
New Britain.....	1		Wichita.....		3
Norwich.....	1		Kentucky:		
Waterbury.....	4	2	Louisville.....	1	9
District of Columbia:			Louisiana:		
Washington.....		8	New Orleans.....		8
Georgia:			Maine:		
Atlanta.....	1	4	Biddeford.....	1	
Rome.....	1		Portland.....		1
Savannah.....		3			

PNEUMONIA (ALL FORMS)—Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Maryland:			New Jersey—Continued.		
Baltimore.....	20	7	Plainfield.....		1
Cumberland.....	3	2	Trenton.....	6	2
Massachusetts:			West New York.....		1
Attleboro.....		1	New York:		
Boston.....	13	19	Albany.....	6	
Cambridge.....		1	Auburn.....	2	
Chelsea.....	1		Buffalo.....	16	3
Easthampton.....	2		Cohoes.....	3	
Everett.....	2	1	Elmira.....	1	1
Fall River.....	2	2	Hudson.....	1	
Haverhill.....	2	1	Ithaca.....	1	1
Holyoke.....		1	Jamestown.....	2	1
Leominster.....	1		Lackawanna.....	8	2
Lynn.....	1		Middletown.....	1	1
Malden.....		1	Mount Vernon.....	6	
New Bedford.....		3	New York.....	169	87
Newton.....	1	1	North Tonawanda.....	2	
North Adams.....	1		Port Chester.....	1	1
Northampton.....	1		Rochester.....	8	1
North Attleboro.....	1	1	Rome.....	1	
Plymouth.....		1	Saratoga Springs.....	1	1
Salem.....	1	1	Syracuse.....	9	4
Somerville.....	1		Troy.....		3
Springfield.....	1	2	White Plains.....	1	2
Taunton.....		2	Yonkers.....	3	2
Watertown.....	1	1	North Carolina:		
Westfield.....	1	1	Charlotte.....		1
Worcester.....	5	5	Durham.....		1
Michigan:			Wilmington.....	1	1
Ann Arbor.....		1	Ohio:		
Battle Creek.....	1		Akron.....	1	
Detroit.....	43	9	Alliance.....		1
Flint.....		1	Barberton.....		1
Grand Rapids.....	4		Cincinnati.....		1
Highland Park.....	4	3	Cleveland.....	15	8
Kalamazoo.....	2	2	Dayton.....	2	
Pontiac.....	1	1	East Cleveland.....	2	
Minnesota:			Marion.....	1	
Duluth.....		1	Portsmouth.....		1
Minneapolis.....		3	Springfield.....		1
St. Paul.....	1	2	Toledo.....		4
Missouri:			Oregon:		
Cape Girardeau.....		1	Portland.....		6
Jefferson City.....		2	Pennsylvania:		
Kansas City.....	2	5	Philadelphia.....	73	43
St. Joseph.....		2	Rhode Island:		
Montana:			Cranston.....	1	1
Billings.....	1		Providence.....		3
Butte.....		3	South Carolina:		
Great Falls.....	3	2	Charleston.....		2
Missoula.....		1	Spartanburg.....		1
Nebraska:			Tennessee:		
Fremont.....		2	Nashville.....	2	3
Lincoln.....		1	Texas:		
Omaha.....		3	Dallas.....	2	1
Nevada:			El Paso.....		1
Reno.....	2		Galveston.....		1
New Hampshire:			Houston.....		2
Concord.....		4	Utah:		
Manchester.....	1	1	Salt Lake City.....		3
Portsmouth.....	1		Virginia:		
New Jersey:			Danville.....		1
Atlantic City.....	3	2	Richmond.....		1
Bayonne.....	1		Staunton.....		2
Bloomfield.....	1		West Virginia:		
Jersey City.....	3		Charleston.....	1	
Kearny.....	1		Huntington.....		2
Montclair.....	3		Wisconsin:		
Morristown.....	2		Fond du Lac.....	1	
Newark.....	28	3	Milwaukee.....	14	2
Passaic.....	2		Wausau.....		1
Paterson.....	2				

POLIOMYELITIS (INFANTILE PARALYSIS).

State Reports for September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Connecticut:		Kansas—Continued.	
Fairfield County—		Lyon County—	
Bridgeport.....	1	Emporia.....	2
Hartford County—		Total.....	3
Hartford.....	1	Ohio:	
West Hartford.....	1	Ashland County.....	1
Litchfield County—		Cuyahoga County.....	3
Plymouth.....	1	Erie County.....	1
New London County—		Hamilton County.....	2
Groton.....	3	Lucas County.....	2
Windham County—		Montgomery County.....	1
Putnam.....	1	Mercer County.....	1
Total.....	8	Ottawa County.....	1
Iowa:		Wood County.....	1
Blackhawk County.....	1	Total.....	13
Boone County.....	1	Virginia:	
Cerro Gordo County.....	3	Campbell County.....	1
Dubuque County.....	1	Culpeper County.....	1
Webster County.....	1	Lee County.....	1
Total.....	7	Roanoke County—	
Kansas:		Roanoke.....	1
Butler County—		Russell County.....	2
Benton.....	1	Tazewell County.....	1
		Total.....	7

City Reports for Week Ended Oct. 23, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of the years 1915 to 1919, inclusive. In instances in which the information is not available for the full five years, the average includes from one to four years.

Place.	Average cases.	1920.		Place.	Average cases.	1920.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Massachusetts—Continued.			
Long Beach.....	0	1		Somerville.....	1	1	1
Los Angeles.....	(1)		1	Waltham.....	2	3	
Illinois:				Watertown.....		1	
Aurora.....		1		Michigan:			
Chicago.....	*1	4		Detroit.....	(1)	1	
Indiana:				Flint.....	(1)	2	1
Richmond.....		1		Missouri:			
Maine:				St. Louis.....	0	1	
Bangor.....		1		New Jersey:			
Portland.....	(1)	1		Newark.....	0	1	
Massachusetts:				Orange.....	0	1	
Boston.....	*1	6	2	Rahay.....		1	
Brockton.....	(1)	3		New York:			
Brookline.....	1	1		Middletown.....	0	1	
Cambridge.....	2	5	2	New York.....	*2	12	4
Chelsea.....	0	1		Ohio:			
Danvers.....		1		Cleveland.....	2	1	
Dedham.....	0	2		Pennsylvania:			
Everett.....	(1)	1		Erie.....	(1)	1	
Haverhill.....	0	1	1	Johnstown.....	0	1	
Lawrence.....	0	2	1	Oil City.....	0	1	
Lowell.....	1	1		Philadelphia.....	*0	1	
Lynn.....	2	2	1	Uniontown.....	0	1	
Medford.....	(1)	1		Warren.....		2	
Melrose.....	0	1		Rhode Island:			
North Attleboro.....		1		Newport.....	0	1	
Peabody.....		1		Wisconsin:			
Salem.....		1		Green Bay.....		1	1

* Average less than 1.

* Excluding 1916 and 1917, epidemic years.

* Excluding 1916, an epidemic year.

RABIES IN ANIMALS.

Kansas City, Mo., and Houston, Tex.

During the week ended October 23, 1920, one case of rabies in animals was reported at Kansas City, Mo., and one case was reported at Houston, Tex.

RABIES IN MAN.

Lee County, S. C.—September, 1920.

During September, 1920, one case of rabies in man was reported in Lee County, S. C.

SCARLET FEVER.

See Telegraphic weekly reports from States, p. 2722; Monthly summaries by States, p. 2725; and Weekly reports from cities, p. 2742.

SMALLPOX.

Kansas Report for September, 1920—Vaccination Histories.

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Vaccinated within 7 years preceding attack.	I ast vaccinated more than 7 years preceding attack.	Never successfully vaccinated.	History not obtained or uncertain.
Kansas:						
Barton County—						
Great Bend.....	1				1	
Bourbon County—						
Fort Scott.....	1		1			
Butler County—						
Augusta.....	4					4
El Dorado.....	2					2
Crawford County—						
Pittsburg.....	1					1
Dickinson County—						
Chapman.....	1					1
Hore.....	1				1	
Ellis County—						
Hays.....	1			1		
Franklin County—						
Ottawa.....	1				1	
Harvey County—						
Newton.....	1					1
Jewell County—						
Randall.....	1					1
Mankato.....	1					1
Johnson County—						
Lexena.....	1					1
Kingman County—						
Kingman.....	2					2
Linn County—						
Pleasanton.....	10				5	5
Boicourt.....	4					4
Marshall County—						
Marysville.....	2					2
Montgomery County—						
Colleyville.....	1				1	
Morris County—						
Council Grove.....	1					1
Neosho County—						
Urbana.....	1					1
Ness County—						
Ness City.....	2					2
Osage County—						
Osage City.....	10		2		6	2
Phillips County—						
Glade.....	1					1

SMALLPOX—Continued.

Kansas Report for September, 1920—Vaccination Histories—Continued.

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Vaccinated within 7 years preceding attack.	Last vaccinated more than 7 years preceding attack.	Never successfully vaccinated.	History not obtained or uncertain.
Kansas—Continued.						
Pottawatomie County—						
Duluth.....	1				1	
Rawlins County—						
Ludell.....	1				1	
Rice County—						
Little River.....	7					7
Sedgewick County—						
Clearwater.....	1					1
Wichita.....	10					10
Shawnee County—						
Berrytown.....	1				1	
Toneka.....	3				1	2
Sherman County—						
Goodland.....	1				1	
Washington County—						
Washington.....	1					1
Wilson County—						
Idedonia.....	10				7	3
Benedict.....	1				1	
Wyandotte County—						
Kansas City.....	3			1		2
Total.....	91		3	2	28	58

State Reports for August and September, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Delaware (August):			Ohio (September):		
Sussex County—			Allen County.....	15	
Milton.....	1		Butler County.....	9	
Iowa (September):			Coshocton County.....	1	
Adams County.....	5		Clark County.....	1	
Allamakee County.....	1		Crawford County.....	10	
Boone County.....	17		Cuyahoga County.....	2	
Clay County.....	1		DeWance County.....	3	
Clayton County.....	1		Fayette County.....	7	
Clinton County.....	1		Hamilton County.....	20	
Days County.....	1		Hardin County.....	3	
Decatur County.....	1		Knox County.....	1	
Delaware County.....	2		Logan County.....	3	
Dubuque County.....	34		Lorain County.....	1	
Fayette County.....	1		Lucas County.....	2	
Franklin County.....	1		Mahoning County.....	4	
Fremont County.....	2		Marion County.....	1	
Grundy County.....	1		Mercer County.....	3	
Harrison County.....	1		Miami County.....	2	
Henry County.....	3		Monroe County.....	1	
Jasper County.....	2		Morrow County.....	1	
Johnson County.....	2		Ottawa County.....	2	
Jones County.....	1		Paulding County.....	2	
Lee County.....	1		Pickaway County.....	2	
Linn County.....	4		Richland County.....	2	
Lyon County.....	1		Ross County.....	1	
Mahaska County.....	2		Scioto County.....	1	
Monroe County.....	1		Seneca County.....	2	
Page County.....	1		Stark County.....	5	
Polk County.....	2		Summit County.....	30	
Pottawattamie County.....	2		Trumbull County.....	1	
Ringgold County.....	1		Williams County.....	2	
Scott County.....	4		Wyandot County.....	1	
Union County.....	5		Total.....	141	
Wapello County.....	1		Virginia (September):		
Webster County.....	1		Buchanan County.....	7	
Worth County.....	1		Buckingham County.....	20	
Total.....	110		Dillwyn.....	6	
			Lee County.....	16	

SMALLPOX—Continued.

State Reports for August and September, 1920—Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Virginia (September)—Con.			Virginia (September)—Con.		
Loudoun County—			Shenandoah County—		
Leesburg.....	1	.....	Seven Fountains.....	7	.....
Norfolk County—			Tazewell County.....	4	.....
Portsmouth.....	1	.....	Warwick County—		
Roanoke County—			Newport News.....	1	.....
Roanoke.....	1	.....	Wise County.....	6	.....
Rockingham County.....	4	.....	Morton.....	3	.....
Russell County—			Wise.....	12	.....
Honaker.....	8	.....	Total.....	109	.....
Scott County.....	2	.....		

City Reports for Week Ended Oct. 23, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of the years 1915 to 1919, inclusive. In instances in which the information is not available for the full five years, the average includes from one to four years.

Place.	Average cases.	1920		Place.	Average cases.	1920	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Louisiana:			
Mobile.....	(1)	1	.....	New Orleans.....	(1)	2	.....
Arkansas:				Michigan:			
Fort Smith.....		1	.....	Battle Creek.....	0	14	.....
California:				Detroit.....	4	13	.....
Berkeley.....	0	5	.....	Grand Rapids.....	(1)	1	.....
Los Angeles.....	(1)	2	.....	Lansing.....	0	1	.....
Oakland.....	0	2	.....	Sault Ste. Marie.....	0	3	.....
Pasadena.....	0	1	.....	Minnesota:			
Sacramento.....	0	1	.....	Duluth.....	(1)	5	.....
San Diego.....	(1)	2	.....	Minneapolis.....	3	35	.....
San Francisco.....	(1)	4	.....	St. Paul.....	2	9	.....
Colorado:				Winona.....	(1)	26	.....
Denver.....	8	4	.....	Missouri:			
Pueblo.....	0	4	.....	Independence.....	0	2	.....
Georgia:				Kansas City.....	9	8	.....
Atlanta.....	1	4	.....	St. Louis.....	1	2	.....
Idaho:				Montana:			
Boise.....	(1)	1	.....	Butte.....	3	1	.....
Illinois:				Great Falls.....	0	1	.....
Bloomington.....		1	.....	Missoula.....	0	2	.....
Chicago.....	2	2	.....	Nebbraska:			
Danville.....	(1)	2	.....	Lincoln.....	1	2	.....
East St. Louis.....	0	1	.....	Omaha.....	1	2	.....
Elgin.....	(1)	1	.....	North Dakota:			
Jacksonville.....	1	1	.....	Fargo.....	(1)	5	.....
Kewanee.....		1	.....	Grand Forks.....		1	.....
Rockford.....	0	15	.....	Ohio:			
Indiana:				Akron.....	(1)	18	.....
Hammond.....	0	3	.....	Alliance.....	0	1	.....
Huntington.....		1	.....	Cleveland.....	13	5	.....
Indianapolis.....	4	2	.....	Middletown.....	0	1	.....
Marion.....	0	4	.....	Springfield.....	0	1	.....
Mishawaka.....		4	.....	Youngstown.....	3	1	.....
South Bend.....	1	6	.....	Oregon:			
Terre Haute.....	0	1	.....	Portland.....	2	7	.....
Iowa:				South Dakota:			
Cedar Rapids.....	0	2	.....	Sioux Falls.....	(1)	3	.....
Clinton.....	0	2	.....	Tennessee:			
Council Bluffs.....	1	1	.....	Johnson City.....		3	.....
Davenport.....	3	5	.....	Memphis.....	(1)	1	.....
Des Moines.....	0	2	.....	Utah:			
Dubuque.....	(1)	14	.....	Salt Lake City.....	2	14	.....
Iowa.....	0	3	.....	Vermont:			
Marshalltown.....	13	1	.....	Rutland.....	0	8	.....
Sioux City.....	2	1	.....	Washington:			
Kansas:				Hoquiam.....	1	1	.....
Wichita.....	(1)	3	.....	Seattle.....	9	4	.....
Kentucky:				Spokane.....	5	5	.....
Lexington.....	0	1	.....	Tacoma.....	0	4	.....

¹ Average less than 1.

SMALLPOX—Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

Place.	Average cases.	1920		Place	Average cases.	1920	
		Cases.	Deaths.			Cases.	Deaths.
Washington—Continued.				Wisconsin—Continued.			
Walla Walla.....	5	2	.....	Green Bay.....	1	1	.....
Yakima.....	1	1	.....	Kenosha.....	(1)	1	.....
West Virginia:				La Crosse.....	1	36	.....
Bluefield.....	0	1	.....	Milwaukee.....	2	38	.....
Clarksburg.....		5	.....	Sheboygan.....		5	.....
Wyoming:				Wyoming:			
Appleton.....	0	1	.....	Cheyenne.....	0	1	.....
Eau Claire.....	0	2	.....			

¹ Average less than 1.

TETANUS.

City Reports for Week Ended Oct. 23, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Connecticut:			New York:		
New Haven.....	1	1	Albany Falls.....	1	1
Stamford.....	1	.....	New York.....	1	1
Illinois:			White Plains.....	1	1
Chicago.....	3	2	Pennsylvania:		
Michigan:			Philadelphia.....	1	2
Pontiac.....	1	1	South Carolina:		
New Jersey:			Spartanburg.....	1	.....
Atlantic City.....	1	1			

TUBERCULOSIS.

See Telegraphic weekly reports from States, p. 2722, and Weekly reports from cities, p. 2742.

TYPHOID FEVER.

Salem, Ohio.

An epidemic of typhoid fever has been reported at Salem, Ohio. The number of cases reported October 14 to November 10 was 473.

State Reports for August and September, 1920.

Place.	New cases reported.	Place.	New cases reported.
Connecticut (September):		Connecticut (September)—Continued.	
Fairfield County—		New Haven County—	
Bridgeport.....	7	Branford.....	1
New Canaan.....	1	Derby.....	1
New Fairfield.....	1	New Haven.....	11
Norwalk.....	4	Orange.....	1
Wilton.....	1	Waterbury.....	1
Hartford County—		Wallingford.....	1
Bristol.....	1	New London County—	
Enfield.....	37	Croton.....	1
Farmington.....	1	New London.....	1
Hartford.....	28	Stonington.....	1
New Britain.....	13	Windham County—	
Newington.....	2	Killiney.....	2
Plainville.....	1	Putnam.....	1
Windsor.....	6	Total.....	131
Litchfield County—			
New Hartford.....	1		
Middlesex County—			
East Hampton.....	2	Delaware (August):	
Middleton.....	2	Kent County—	
Saybrook.....	1	Harrington (town).....	1

TYPHOID FEVER—Continued.

State Reports for August and September, 1920—Continued.

Place.	New cases reported.	Place.	New cases reported.
Delaware (August)—Continued.		Kansas (September)—Continued.	
New Castle County—		Flaney County—	
Middletown (town).....	1	Garden City.....	2
Newark (town).....	1	Inalls.....	1
Wilmington.....	4	Ford County—	
Sussex County—		Bucklin.....	1
Laurel (town).....	1	Dodge City (ARFD).....	4
Total.....	8	Franklin County—	
Delaware (September):		Pomona.....	1
Kent County—		Geary County—	
Harrington.....	2	Junction City.....	2
Houston.....	2	Gray County—	
New Castle County—		Cimarron.....	3
Middletown.....	1	Harper.....	4
Newark.....	3	Jackson County—	
Wilmington.....	4	Holton.....	2
Sussex County—		Jewell County—	
Oak Grove.....	1	Randall.....	2
Seaford.....	1	Johnson County—	
Total.....	14	Merriam.....	1
Kansas (September):		Kinman County—	
Allen County—		Kinman.....	2
Iola.....	2	Kiowa County—	
Atchison County—		Haviland.....	1
Atchison (ARFD).....	2	Labelle County—	
Barber County—		Parsons.....	3
Kiowa.....	1	Leavenworth County—	
Barton County—		Kickapoo.....	1
Great Bend.....	3	Leavenworth.....	1
Bourbon County—		Linn County—	
Uniontown.....	1	Mound City.....	1
Fort Scott.....	1	Pleasanton.....	1
Brown County—		Lyon County—	
Horton.....	3	Olpe.....	4
Butler County—		Reading.....	2
Gordon.....	1	Allen.....	5
Towanda.....	1	Americus.....	1
Stone Park.....	1	Admire.....	1
Donnell.....	1	Emporia.....	2
El Dorado.....	12	Marion County—	
Chase County—		Florence.....	2
Cottonwood Falls.....	1	McPherson County—	
Strong City.....	1	McPherson.....	1
Bazaar.....	1	Meade County—	
Clements.....	1	Meade.....	1
Chautauqua County—		Miami County—	
El in.....	1	Oskaloosa.....	5
Sedan.....	2	Montgomery County—	
Elk City.....	2	Cherryvale.....	1
Cherokee County—		Coffeyville.....	4
Columbus.....	15	Morris County—	
Crestline.....	1	Council Grove.....	3
Baxter Springs.....	1	Nemaha County—	
Chetopa.....	1	Bern.....	1
Galen.....	1	Sabetha.....	1
West Mineral.....	1	Neosho County—	
Scammon.....	2	Erie.....	1
Cowley County—		Osage County—	
Udall.....	1	Lyndon.....	1
Elk City.....	3	Overbrook.....	1
Winfield.....	2	Osborne County—	
Crawford County—		Osborne.....	1
Radley.....	2	Pottawatomie County—	
Ringo.....	1	St. George.....	1
Pittsburg.....	1	Pratt County—	
Decatur County—		Pratt.....	1
Norcaton.....	3	Coats.....	1
Dickinson County—		Reno County—	
Abilene.....	1	Hutchinson.....	6
Herington.....	2	Republic County—	
Doniphan County—		Belleville.....	1
Elwood.....	1	Riley County—	
White Cloud.....	1	Manhattan.....	1
Ellsworth County—		Rooks County—	
Langley.....	1	Webster.....	1
		Saline County—	
		Bridgeport.....	1
		Salina.....	1

TYPHOID FEVER—Continued.

State Reports for August and September, 1920—Continued.

Place.	New cases reported.	Place.	New cases reported.
Kansas (September)—Continued.		Ohio (September)—Continued.	
Sedgwick County—		Morrow County.....	1
Greenwich.....	1	Muskingum County.....	4
Cheney.....	1	Paulding County.....	2
Valley Center.....	1	Pickaway County.....	12
Wichita.....	9	Pike County.....	3
Shawnee County—		Portage County.....	3
Richland.....	1	Preble County.....	3
Topeka (I R. F. D.).....	17	Putnam County.....	3
Smith County—		Richland County.....	4
Lebanon.....	1	Ross County.....	9
Stafford County—		Sandusky County.....	9
Stafford.....	4	Scioto County.....	13
St. John.....	1	Seneca County.....	2
Sumner County—		Shelby County.....	2
Conway Springs.....	6	Stark County.....	5
Mulvane.....	1	Summit County.....	36
Riverside.....	3	Trumbull County.....	9
Rome.....	1	Van Wert County.....	3
Wellington.....	2	Warren County.....	2
Wilson County—		Wayne County.....	2
Fredonia.....	1	Williams County.....	7
Nexdesha.....	1	Wood County.....	7
Wyandotte County—			
Kansas City.....	6	Total.....	494
Total.....	221		
Ohio (September):		Virginia (September):	
Adams County.....	1	Accomac County.....	7
Allen County.....	7	Harborton.....	1
Ashland County.....	1	Onancock.....	1
Ashtabula County.....	9	Tanier.....	1
Athens County.....	5	Albemarle County.....	16
Auglaize County.....	7	Alexandria County—	
Belmont County.....	3	Alexandria.....	6
Brown County.....	9	Alleghany County.....	3
Butler County.....	9	Clifton Forge.....	6
Champaign County.....	5	Covington.....	3
Clark County.....	7	Appomattox County.....	1
Clermont County.....	4	Augusta County.....	7
Clinton County.....	1	Basie.....	1
Columbiana County.....	8	Fordwick.....	1
Crawford County.....	7	Staunton.....	1
Cuyahoga County.....	32	Bath County.....	2
Drake County.....	1	Bedford County.....	16
Delaware County.....	3	Bedford City.....	12
Erle County.....	1	Botetourt County—	
Fairfield County.....	3	Troutville.....	1
Fayette County.....	6	Brunswick County.....	3
Franklin County.....	8	Buckingham County.....	3
Fulton County.....	7	Campbell County—	
Gallia County.....	1	Altavista.....	2
Greene County.....	4	Brookneal.....	3
Guernsey County.....	2	Lynchburg.....	6
Hamilton County.....	16	Caroline County.....	1
Hancock County.....	2	Carroll County.....	2
Hardin County.....	12	Charlotte County.....	4
Henry County.....	19	Chesterfield County.....	7
Highland County.....	2	Culpeper County.....	1
Hocking County.....	1	Culpeper.....	2
Holmes County.....	1	Dickenson County.....	4
Jackson County.....	2	Clintwood.....	2
Knox County.....	3	Dinwiddie County.....	4
Lake County.....	1	Elizabeth City County.....	1
Lawrence County.....	5	Hampton.....	1
Licking County.....	5	Phoebeus.....	1
Logan County.....	3	Essex County.....	4
Lorain County.....	5	Fauquier County.....	1
Lucas County.....	14	Remington.....	1
Madison County.....	1	Floyd County.....	1
Mahoning County.....	12	Floyd.....	1
Marion County.....	2	Fluvanna County.....	1
Medina County.....	6	Giles County.....	1
Mercer County.....	6	Grayson County.....	3
Miami County.....	70	Greene County.....	5
Monroe County.....	6	Halifax County.....	1
Montgomery County.....	9	Hanover County.....	1
Morgan County.....	2	Henrico County.....	9
		Richmond.....	13

TYPHOID FEVER—Continued.

State Reports for August and September, 1920—Continued.

Place.	New cases reported.	Place.	New cases reported.
Virginia (September)—Continued.		Virginia (September)—Continued	
Henry County.....	3	Rockingham County—	
Bassett.....	6	Bridgewater.....	1
Martinsville.....	2	Harrisonburg.....	1
James City County.....	4	Russell County.....	10
Williamsburg.....	1	Honaker.....	2
King and Queen County..	9	Scott County.....	3
King George County.....	1	Gate City.....	4
King William County.....	1	Shenandoah County.....	3
Lancaster County.....	1	Smyth County.....	5
Lee County.....	4	Marion.....	2
St. Charles.....	1	Southampton County.....	10
Loudoun County.....	2	Boykins.....	1
Louisa County.....	3	Stafford County.....	2
Lunenburg County.....	2	Surry County.....	1
Madison County.....	5	Sussex County.....	1
Mecklenburg County.....	2	Tazewell County.....	5
Montgomery County.....	6	North Tazewell.....	1
Radford.....	2	Warren County.....	1
Nansemond County.....	5	Warwick County.....	1
Nelson County.....	2	Newport News.....	4
Norfolk County—		Washington County.....	9
Norfolk.....	3	Bristol.....	7
Portsmouth.....	4	Westmoreland County.....	4
Northumberland County.....	1	Wise County.....	4
Pittsylvania County.....	2	Appalachia.....	1
Powhatan County.....	4	Blestone Gap.....	1
Princess Anne County.....	1	East Stone Gap.....	1
Prince Edward County.....	1	Osaka.....	1
Pulaski County.....	2	Wythe County.....	2
Roanoke County.....	3		
Roanoke.....	13	Total.....	359
Salem.....	1		
Rockbridge County—			
Buena Vista.....	2		

City Reports for Week Ended Oct. 23, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of the years 1915 to 1919, inclusive. In instances in which the information is not available for the full five years, the average includes from one to four years.

Place.	Average cases.	1920		Place.	Average cases.	1920	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Idaho:			
Bessemer.....		1	1	Boise.....	0	1	
Birmingham.....	9	1		Illinois:			
Arkansas:				Alton.....	0	1	1
Fort Smith.....		4		Aurora.....		1	
Little Rock.....	1	2		Bloomington.....		1	1
California:				Chicago.....	18	12	1
Los Angeles.....	5	2		Danville.....	1	2	
Oakland.....	(1)	4		East St. Louis.....	0	1	
Sacramento.....	(1)		1	La Salle.....		1	
San Francisco.....	1	3	2	Mattoon.....	0	1	
Colorado:				Quincy.....	0	1	
Denver.....	5	1		Indiana:			
Connecticut:				Bloomington.....	0	1	1
Bridgeport.....	(1)		1	Frankfort.....		1	
Hartford.....	2	3		Gary.....			1
New Haven.....	3	3	1	Hammond.....	5	5	2
Delaware:				Indianapolis.....	1	2	
Wilmington.....	4	2		Kokomo.....	0	1	
District of Columbia:				La Fayette.....	0	1	
Washington.....	10	2	2	Marion.....	0	1	
Georgia:				Richmond.....		1	
Atlanta.....	2	5		Iowa:			
Rome.....	0	1		Burlington.....	0	3	
Savannah.....	2	1		Cedar Rapids.....	0	1	

¹ Average less than 1.

TYPHOID FEVER—Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

Place.	Average cases.	1920		Place.	Average cases.	1920	
		Cases.	Deaths.			Cases.	Deaths.
Iowa—Continued.				New York—Continued.			
Clinton.....	0	1		Hornell.....	0	1	
Muscatine.....	0	1		Ithaca.....	0		1
Kansas:				New York.....	51	41	4
Hutchinson.....	0	2		Poughkeepsie.....	1	1	
Kansas City.....	2	1		Roche ter.....	2	1	
Topeka.....	5	2		Syracuse.....	1	1	2
Kentucky:				North Carolina:			
Louisville.....	2	4	1	Durham.....	1	1	
Paducah.....		3		Raleigh.....	0	1	
Louisiana:				Winston-Salem.....	1	1	1
New Orleans.....	11	4	1	Ohio:			
Maine:				Barberton.....		1	
Bangor.....		2		Cincinnati.....	7	1	
Portland.....	1	1		Cleveland.....	6	2	1
Maryland:				Dayton.....	2	2	
Baltimore.....	21	9	4	Lancaster.....	2	1	
Cumberland.....	1	1		Lorain.....	(1)	1	
Massachusetts:				Marion.....	1	7	
Beverly.....	2	1		Middleton.....	0	1	
Boston.....	5	1		Piqua.....	1	2	1
Chelsea.....	1	1		Portsmouth.....	1	1	
Danvers.....	0	1		Toledo.....	6	5	2
Everett.....	(1)	1		Oregon:			
Fall River.....	7	1		Portland.....	3	2	
Haverhill.....	0	1		Salem.....	0	1	
Lowell.....	2	1		Pennsylvania:			
Lynn.....	2	1		Allentown.....	1	3	
New Bedford.....	3	3		Beaver Falls.....	0	1	
Pittsfield.....	(1)	1		Butler.....	2	3	
Somerville.....	(1)	2		Chester.....	(1)	2	
Taunton.....	(1)	2		Erie.....	6	1	
Worcester.....	2	1		Meadville.....	0	1	
Michigan:				Philadelphia.....	16	14	2
Ann Arbor.....	2		1	Scranton.....	0	1	
Cadillac.....	0		1	Washington.....	2	3	
Detroit.....	12	7	1	York.....	4	1	
Kalamazoo.....	(1)	1		Rhode Island:			
Port Huron.....		1	1	Providence.....	3		1
Saginaw.....	2	4		Tennessee:			
Minnesota:				Knoxville.....	2	3	
Duluth.....	(1)	2		Nashville.....	7	1	
Mankato.....	0	2		Texas:			
Minneapolis.....	3	3	2	Austin.....	0		1
St. Paul.....	(1)	3		Beaumont.....	0	1	
Missouri:				Dallas.....	2	2	
Kansas City.....	4	1	1	El Paso.....	2	3	2
St. Joseph.....	(1)	1		Galveston.....	2	1	
St. Louis.....	7	6		Houston.....	3	1	
Montana:				Waco.....	0		1
Billings.....	0		1	Utah:			
Great Falls.....	3	1		Salt Lake City.....	3	1	1
Nebraska:				Vermont:			
Lincoln.....	(1)	1		Burlington.....	0	1	
Omaha.....	(1)	1	1	Rutland.....	(1)	2	
New Jersey:				Virginia:			
Atlantic City.....	(1)	1		Danville.....	0		1
Elizabeth.....	1	1		Portsmouth.....	(1)	1	
Elwood.....	0	1		Richmond.....	4		1
Hoboken.....	0	1		Washington:			
Jersey City.....	2	2		Seattle.....	(1)	1	
Morristown.....	(1)	1		Spokane.....	0	3	
Orange.....	0	1		Walla Walla.....	1	1	
Plainfield.....	0	1		West Virginia:			
Trenton.....	3	1		Bluefield.....	0	4	
New Mexico:				Huntington.....		1	
Albuquerque.....		1		Morgantown.....	0	2	
New York:				Wheeling.....	2	2	
Albany.....	1	4		Wisconsin:			
Auburn.....	(1)	1		Milwaukee.....	1	1	
Buffalo.....	5	2	1	Wausau.....	0	1	
Cohoes.....	0	1					

1 Average less than 1.

TYPHUS FEVER.

Temple, Tex.

Under date of November 4, 1920, one case of typhus fever was reported at Temple, Tex.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City Reports for Week Ended Oct. 23, 1920.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Adams, Mass.	14,406				14					
Akron, Ohio.	93,604	26	10		3		9		4	
Alameda, Cal.	28,433	6	1				1		1	1
Albany, N. Y.	106,632	7	7		7				4	
Albuquerque, N. Mex.	14,509	7	5						4	4
Alexandria, La.	16,232	10								
Alexandria, Va.	17,959	3								
Allentown, Pa.	65,109	3			10		1		2	
Alliance, Ohio.	19,581	5	3				2			
Alton, Ill.	23,783	10	8							1
Altoona, Pa.	59,712	3	3		1		2			
Amesbury, Mass.	10,200	4	1							
Anaconda, Mont.	10,631	4								1
Ann Arbor, Mich.	15,041	20	5				1			
Arlington, Mass.	13,073	1	1				2		2	
Asbury Park, N. J.	14,629	3								
Ash and, Wis.	11,504				1					
Ashtabula, Ohio.	22,008	2	1		1					
Atchison, Kans.	16,785	4	4				2			
Atlanta, Ga.	196,154	48	13	1	2	1	4	1	6	
Atlantic City, N. J.	55,510	8	4		1				1	
Attleboro, Mass.	19,776	5								
Auburn, Me.	16,607	6								1
Auburn, N. Y.	37,823	16		1	1		1			1
Aurora, Ill.	34,795	8								1
Austin, Tex.	35,612	10	2							1
Bakersfield, Cal.	17,543	7	2		4				5	
Baltimore, Md.	594,637	149	59	5	5	18		23	11	
Bangor, Me.	26,958				3		1		1	
Barberton, Ohio.	14,187	4							1	
Battle Creek, Mich.	30,159		4	1						
Bayonne, N. J.	72,204		10				7		1	
Beacon, N. Y.	11,674	6	1						1	
Beatrice, Nebr.	10,437	2								
Beaumont, Tex.	28,851	6								
Beaver Falls, Pa.	13,749				2		1			
Belleville, N. J.	12,797		1							
Bellingham, Wash.	34,362		1				4			
Beloit, Wis.	18,547	2	1				1			
Benton Harbor, Mich.	11,099	2	1				1			
Berkeley, Calif.	60,427	14	1		1		4			
Berlin, N. H.	13,822	0			3					
Bessemer, Ala.	17,156	9	5						1	
Beverly, Mass.	22,128	3								
Biddeford, Me.	17,760				4					
Billings, Mont.	15,123	6			15					
Birmingham, Ala.	189,716	58	13		1		5		5	2
Bloomfield, N. J.	19,013	2			1					
Bloomington, Ill.	27,422	9					5		6	
Bloomington, Ind.	11,661	3					2			1
Bluefield, W. Va.	16,123		8				1			
Boise, Idaho.	35,951	7								
Boston, Mass.	767,813	173	49	2	6	30		48	11	
Brad dock, Pa.	22,060				1					
Bradford, Pa.	14,544				4		4			
Brazz, Ind.	10,472	0								
Bridgeport, Conn.	124,724	29	13		4		4		7	2
Bristol, Conn.	16,318		5						1	
Brookton, Mass.	69,152	14					2		1	
Brookline, Mass.	33,526	5					1		1	
Brunswick, Ga.	10,984	3					1			
Buffalo, N. Y.	475,781	107	10	9	97	9	1	19	5	

Population Apr. 15, 1910.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Burlington, Iowa.	25,144	7					1			
Burlington, Vt.	21,802	1					1			
Butler, Pa.	28,677	21	1				1			
Butte, Mont.	44,057	4			90					
Cadillac, Mich.	10,158	2							1	
Cambridge, Mass.	114,293	31	4		1		3		4	3
Canton, Ill.	13,674	3								
Cape Girardeau, Mo.	11,146	5	3				2		1	1
Carbondale, Pa.	19,397	5	5		6		2			
Carnegie, Pa.	11,963	7					6			
Cedar Rapids, Iowa.	38,033	5	5				2			
Centralia, Ill.	11,838	2								
Charleston, S. C.	61,041	22	2				2		1	1
Charleston, W. Va.	31,060	3			1		1			
Charlotte, N. C.	40,759	10	9		11		1		9	1
Chelsea, Mass.	46,405	9	8		7		1			
Chester, Pa.	41,857	6					3			
Cheyenne, Wyo.	11,320	2			1					
Chicago, Ill.	2,547,201	402	238	9	38		134	1	229	29
Chicopee, Mass.	29,950	9		1						
Chillicothe, Ohio.	15,625	4					4			
Cincinnati, Ohio.	414,248	88	23	3	5		10		11	16
Clarksburg, W. Va.	12,960	4					2			
Cleveland, Ohio.	692,279	155	54	1	5		62		22	17
Clinton, Mass.	13,075	2			5					
Coatesville, Pa.	14,998	2							1	
Coffeyville, Kans.	18,331	1	2	1						
Cohoes, N. Y.	25,292	6			16					
Colorado Springs, Colo.	38,965	13					4		10	1
Columbia, S. C.	35,165		3				1			
Concord, N. H.	22,858	11					1			
Corpus Christi, Tex.	10,789	6								1
Cortland, N. Y.	13,321	4	1		1				1	
Council Bluffs, Iowa.	31,838	8	1				6	1		
Cranston, R. I.	26,773	4	1							
Crawfordsville, Ind.	11,443	2	1				2			1
Cumberland, Md.	26,686	11					3		3	1
Dallas, Tex.	129,738	30	34	2			3		14	3
Danvers, Mass.	10,037								3	
Danville, Ill.	32,909	4								
Danville, Va.	20,183	3	4				1			1
Dayton, Ohio.	128,939	44	13				7		2	
Dedham, Mass.	10,618	2								
Denver, Colo.	268,439	69	41	5	5		3			13
Des Moines, Iowa.	104,052	5					10			
Detroit, Mich.	619,648	172	135	8	9		69	1	90	18
Dover, N. H.	13,276	3								
Dubuque, Iowa.	40,006		4				1			1
Duluth, Minn.	97,077	8	5		1		4			1
Durham, N. C.	26,160	7	3		1					2
East Chicago, Ind.	30,286	6								1
East Cleveland, Ohio.	13,864		6						1	
Easthampton, Mass.	10,656				2					1
Easton, Pa.	30,854		3							
East Orange, N. J.	43,761	7							2	
East St. Louis, Ill.	77,312	10	4	1			2		1	1
Eau Claire, Wis.	18,887		3				1			
Elgin, Ill.	28,562	5			1		2			
Elizabeth, N. J.	88,830		6				5		2	
Elkhart, Ind.	28,273			1			1			
Elmira, N. Y.	38,272	1	1				1			
El Paso, Tex.	69,149	26	2	1			1			7
Elwood, Ind.	11,028	4								
Englewood, N. J.	12,603	2								1
Erie, Pa.	76,592		11				22		8	
Eureka, Calif.	15,142	3	1				1			1
Evanston, Ill.	29,304	4	1				2			
Evansville, Ind.	76,981	21	13	1			1			
Everett, Mass.	40,160	7	1						3	1
Fairmont, W. Va.	16,111	2								
Fall River, Mass.	129,828	40	12	2	8	1	4		2	2

Population Apr. 15, 1910.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Fargo, N. Dak.	17,872	5	2				2			
Farrell, Pa.	10,190						5			
Findlay, Ohio.	14,838	4	2							
Flint, Mich.	57,386	17	19				11			1
Fond du Lac, Wis.	21,486		2				1			
Fort Scott, Kans.	10,564	3	16							
Fort Smith, Ark.	29,390		6				2			
Fort Worth, Tex.	109,597	19	4		1		1		2	1
Framingham, Mass.	14,149	2					1			
Frankfort, Ind.	10,103	3					2			
Freeport, Ill.	19,844	9					1		1	
Fremont, Nebr.	10,080	4		1						
Fremont, Ohio.	11,034	2					1			
Fresno, Calif.	36,314	8	3							1
Galesburg, Ill.	24,629	6					1	1		
Galveston, Tex.	42,650	8	2							
Gardner, Mass.	17,534	2					5		4	
Gary, Ind.	56,000	20	5	1			4	1		1
Geneva, N. Y.	13,915	4						1		
Glens Falls, N. Y.	17,160	3						1		
Gloucester, City, N. J.	11,375		2		2					
Grand Forks, N. Dak.	16,342		12							
Grand Rapids, Mich.	132,861	41	23	2			11		5	1
Granite City, Ill.	15,800	3	1							
Great Falls, Mont.	13,948	4	4		1		1			
Green Bay, Wis.	30,017	7			4		2			
Greenfield, Mass.	12,251	3	7				2			
Greensboro, N. C.	20,171	6								
Hackensack, N. J.	17,412	8	11	1			3		1	1
Hammond, Ind.	27,016	8	2				3			
Harrisburg, Pa.	73,276		8							
Harrison, N. J.	17,345		3							
Hartford, Conn.	112,831	34	10				5		4	2
Haverhill, Mass.	49,180	18	8				4		2	1
Highland Park, Mich.	33,859	7	2	1			3			
High Point, N. C.	13,429		2				1			
Hoboken, N. J.	78,324	11	3				2		3	1
Holyoke, Mass.	66,503	14	1				1			3
Hot Springs, Ark.	17,090	8								1
Houston, Tex.	116,878	39			1		1			4
Hudson, N. Y.	12,898	4							1	
Huntington, Ind.	10,982	4					1			
Huntington, W. Va.	47,686	11	6	1			2			1
Hutchinson, Kans.	21,461		5				4		1	
Independence, Mo.	11,964	6	1							
Indianapolis, Ind.	283,622	76	7	1	10		12		17	4
Iowa City, Iowa.	11,636									
Ironton, Ohio.	14,079	5	2		1		5			
Ironwood, Mich.	15,095	7			2					
Irrvington, N. J.	16,710						3			
Ishpeming, Mich.	12,448	1							1	1
Ithaca, N. Y.	16,017	12								
Jacksonville, Ill.	15,505	11	1						1	
Jamestown, N. Y.	37,431	7	6		1		2			1
Janesville, Wis.	14,411						1		2	
Jefferson City, Mo.	13,712	9								2
Jersey City, N. J.	312,557		17		2		5		8	
Johnson City, Tenn.	11,885		2				2		2	
Johnstown, Pa.	70,437		6		3		1			
Joplin, Mo.	33,400		4							
Kalamazoo, Mich.	50,408	17	1				3		3	
Kansas City, Kans.	102,096		14		1		1		9	
Kansas City, Mo.	305,816	84	18	1	5		15			5
Kearny, N. J.	24,325	7	3		5					1
Keene, N. H.	10,725	2					1			
Kenosha, Wis.	32,833		1							
Keokuk, Iowa.	14,008	1		1			2		1	
Kewanee, Ill.	13,607	3	2				15			
Knoxville, Tenn.	59,112		11	1			6		2	2

1 Population Apr. 15, 1910.

DIPHtheria, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Popula- tion as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Kokomo, Ind.	21,929	4								
Lacawanna, N. Y.	16,219	4	1		15		3		1	
La Crosse, Wis.	31,833								1	
La Fayette, Ind.	21,481	8								
Lake Charles, La.	14,930	2					3			1
Lancaster, Ohio.	16,086				1					1
Lancaster, Pa.	51,437		26				1		2	
La Salle, Ill.	12,332	6								
Lawrence, Kans.	13,477	4	1	1						
Lawrence, Mass.	102,923	28	7		3		7		5	
Leominster, Mass.	21,365	2					2		2	
Lexington, Ky.	41,997	11					2			
Lincoln, Nebr.	46,957	10					2			3
Little Rock, Ark.	58,716		7				6		1	1
Lockport, N. Y.	20,028	6					2		1	
Logansport, Ind.	21,338	2					3			
Long Beach, Calif.	29,163	15	1							
Lorain, Ohio.	38,266		3				2			
Los Angeles, Calif.	535,485	155	39	2	26		5		50	21
Louisville, Ky.	240,808	62	9				11		8	6
Lowell, Mass.	114,366		10	2	52	1	7		9	
Ludington, Mich.	10,566	4								
Lynchburg, Va.	33,497	5	5							
Lynn, Mass.	104,534	19	3		1		2		3	1
McKeesport, Pa.	48,299		1				2		1	
McKees Rocks, Pa.	20,795						2			
Macon, Ga.	46,079	15	78	1			21			
Madison, Wis.	31,315		2				1			
Mahanoy City, Pa.	17,709		3				2			
Malden, Mass.	52,243	10	4				2		2	
Manchester, N. H.	79,607	18	26				1		4	3
Manitowoc, Wis.	13,931						2			
Mankato, Minn.	10,365								1	
Marion, Ind.	19,923	10					3			1
Marion, Ohio.	24,129	1					1	1		
Marquette, Mich.	12,555	3								
Marshalltown, Iowa.	14,519	2	1						1	1
Martinsburg, W. Va.	12,984		1							
Mattoon, Ill.	12,764		1		1					
Medford, Mass.	26,681	4			1		3			
Melrose, Mass.	17,724	3	5		1					
Memphis, Tenn.	151,877	43	47	2			5		7	5
Meriden, Conn.	29,431		1						2	4
Methuen, Mass.	14,320	4	1		1					
Middletown, N. Y.	15,890	1	1		4		4		1	
Middletown, Ohio.	16,384	4	1				2			
Milwaukee, Wis.	445,008	76	67	4	5		21	2	9	5
Minneapolis, Minn.	373,448	59	22	1	1		25	1	26	6
Mishawaka, Ind.	17,083	4							1	
Missoula, Mont.	19,075	2								
Mobile, Ala.	59,201	17	1						1	1
Monessen, Pa.	23,070				1					
Monmouth, Ill.	10,346	1					2		1	
Montclair, N. J.	27,087	4			6		1			
Montgomery, Ala.	44,039	10	4				3			
Morgantown, W. Va.	14,444	0			3					
Morristown, N. J.	13,410	1								
Moundsville, W. Va.	11,515	3						2		
Mount Carmel, Pa.	20,709		4				3			
Mount Vernon, N. Y.	37,991	9	7				2		2	1
Muncie, Ind.	25,653	13		1			2			
Muscataine, Iowa.	17,713	9								2
Nanticoke, Pa.	23,811		5				1			
Nashville, Tenn.	118,136	42	17				4		1	1
Newark, N. J.	418,789	84	23		5		13		35	10
New Bedford, Mass.	121,622	26	8	1			2		6	2
New Britain, Conn.	55,385	5	8							1
New Brunswick, N. J.	25,855		5				2			
Newburgh, N. Y.	29,893	5	2		1		2			

¹ Population Apr. 15, 1910.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Newburyport, Mass.	15,291	3								
New Haven, Conn.	152,275	40	14	1			15	1	5	2
New Orleans, La.	377,010	110	4		10		7		16	13
New Philadelphia, Ohio.	10,133		1							
Newport, R. I.	30,585	0					1			
Newton, Mass.	44,343	8	5		35		1		1	
New York, N. Y.	5,757,492	1,091	255	12	33	1	115	3	1,301	191
Niagara Falls, N. Y.	38,466	15	11				9		2	1
Norfolk, Va.	91,148				1		1		3	2
Norristown, Pa.	31,969		1				3			
North Adams, Mass.	22,019	5	1						1	
Northampton, Mass.	20,006	6	3						1	
North Attleboro, Mass.	11,248	6	1	1			1			1
North Braddock, Pa.	15,684		1				1			
North Little Rock, Ark.	15,515	3	2				5			
North Tonawanda, N. Y.	14,000	5	1							1
Norwalk, Conn.	27,332	6	2				1			
Norwich, Conn.	21,923	10	1						1	
Norwood, Ohio.	23,299	4					1			
Oakland, Calif.	206,405	36	8				6		1	3
Oak Park, Ill.	27,816	10	3				1		2	1
Oil City, Pa.	20,162		17		10				1	
Oklahoma City, Okla.	97,588	16	14				1			
Old Forge, Pa.	15,479				5		1			
Olean, N. Y.	16,927	2								
Omaha, Nebr.	177,777	42	12	4			4			1
Orange, N. J.	33,636	2			1		2		1	
Oshkosh, Wis.	34,549	13					4			
Paducah, Ky.	25,178		5							
Parkersburg, W. Va.	21,039	6	1							
Parsons, Kans.	15,952		15				4		1	
Pasadena, Calif.	49,620	6								
Passaic, N. J.	74,478	8	6		5		1		1	
Pateron, N. J.	140,512	3	9		1		2		8	
Pawtucket, R. I.	60,666	13	2		1					2
Peabody, Mass.	18,785	7	3						1	2
Peekskill, N. Y.	19,934	3	3							2
Pekin, Ill.	10,973						1			
Peoria, Ill.	72,184	19	2		2		11			
Perth Amboy, N. J.	42,646	6	6		1		3		1	
Petersburg, Va.	25,817	8	7				2			1
Philadelphia, Pa.	1,735,514	440	82	7	3		137	3	97	36
Phillipsburg, N. J.	15,879	5							1	1
Phoenixville, Pa.	11,871		3				1			
Piqua, Ohio.	14,275	7								1
Pittsburgh, Pa.	586,196		47		7		40		15	
Pittsfield, Mass.	39,678	12			15				1	1
Pittston, Pa.	18,975		1							
Plainfield, N. J.	24,330	8			1				1	2
Plattsburg, N. Y.	13,111	5								
Plymouth, Mass.	14,001	5								
Pontiac, Mich.	18,006	8	8		1		10		10	
Port Chester, N. Y.	16,727	2	1							
Port Huron, Mich.	18,863	5	2				2			2
Portland, Me.	64,720	23	2	1	10		2			
Portland, Oreg.	308,399	54	21		11		14		4	6
Portsmouth, Ohio.	29,356	8	8				2			
Portsmouth, Va.	40,693	12	7	1	2		1			
Pottsville, Pa.	22,717		6							
Poughkeepsie, N. Y.	30,786	11	4				1		2	
Providence, R. I.	259,895	44	14		3		8			6
Pueblo, Colo.	56,084	9	10		1	1	1		1	1
Quincy, Ill.	36,832	7	2		1		2			
Quincy, Mass.	39,022	10	2				2		4	2
Racine, Wis.	47,465		20				3			
Rahway, N. J.	10,361	1								
Raleigh, N. C.	20,274	15	8		5		3			1
Reading, Pa.	111,607		2				2			
Redlands, Calif.	14,573	3			1					
Reno, Nev.	15,514	3					2			
Richmond, Ind.	25,080	7	3				2			

¹ Pulmonary tuberculosis only.² Population Apr. 15, 1910.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Popula- tion as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Richmond, Va.	158,702	46	50						12	7
Riverside, Calif.	20,496	3								1
Roanoke, Va.	46,282	6	11				4		1	
Rochester, N. Y.	244,714	46	59	1	3		6	1	17	1
Rockford, Ill.	56,739	14	5				9	1		
Rock Island, Ill.	29,472	1								
Rocky Mount, N. C.	12,773	2								
Rome, Ga.	15,607		4						2	
Rome, N. Y.	24,279				18		2		1	
Rutland, Vt.	15,938	2								
Sacramento, Calif.	68,684	22	2				1		2	2
Saginaw, Mich.	56,489	16	1				5			
St. Cloud, Minn.	12,013		2							
St. Joseph, Mo.	87,498	36	1				3			3
St. Louis, Mo.	768,730	186	166	10	3		28		20	9
St. Paul, Minn.	252,475	29	9				3		8	1
Salern, Mass.	49,346	9	1	1					2	1
Salern, Ore.	21,274	5								
Salt Lake City, Utah.	121,723	19	4	1	23		2		4	
San Bernardino, Calif.	17,616	8	2	1						1
San Diego, Calif.	56,492	24	1	1			2		4	4
Sandusky, Ohio.	20,225	3	1						3	
Sanford, Me.	11,217	0	1							
San Francisco, Calif.	471,023	120	12	2	2		9		25	6
Santa Barbara, Calif.	15,370	7							4	2
Santa Cruz, Calif.	15,150	8	2							1
Saratoga Springs, N. Y.	13,939	4							2	1
Sault Ste. Marie, Mich.	14,130	4					4	1		
Savannah, Ga.	69,270	32	10	1					3	2
Seranton, Pa.	149,541		9		2				3	
Seattle, Wash.	366,445		12		1		5			
Shamokin, Pa.	21,274		1		1		4			
Sharon, Pa.	19,156		1				8			
Sheboygan, Wis.	28,907	8					1			1
Sioux City, Iowa.	58,598		2				4			
Sioux Falls, S. Dak.	16,887	5	1				1			
Somerville, Mass.	88,618	20	2				1		4	2
South Bend, Ind.	70,977	7	6				7		8	2
Southbridge, Mass.	14,475	2								
Spartanburg, S. C.	21,985	8	11							1
Spokane, Wash.	157,654		4		1		5			
Springfield, Ill.	62,623		2		3		13			
Springfield, Mass.	108,668	27	3				9	1	5	2
Springfield, Mo.	41,179	11								1
Springfield, Ohio.	82,296	15	6		2		8		1	1
Stamford, Conn.	31,810				1		3		2	
Staunton, Va.	11,523	6								
Steelton, Pa.	15,759								1	
Steubenville, Ohio.	28,279	7	2							
Stillwater, Minn.	10,198	4	1							
Sunbury, Pa.	16,771		9							
Superior, Wis.	47,167	11	5	2			4	1	2	
Syracuse, N. Y.	158,579	44	10	1	2		13		7	
Tacoma, Wash.	117,445		3							
Taunton, Mass.	36,610	13	1				4			
Terre Haute, Ind.	67,361	13	6				5			
Toledo, Ohio.	202,910	53	55	1	1		20			6
Topeka, Kans.	49,538	8	3		15		5		1	
Trenton, N. J.	113,974	29	7				1		2	
Trinidad, Colo.	14,413									
Troy, N. Y.	78,094	26	1		5		2		2	3
Tuscaloosa, Ala.	10,824		4				1			
Uniontown, Pa.	21,690						1			
Vallejo, Calif.	13,803						1			1
Vancouver, Wash.	13,805						6			
Waco, Tex.	34,015	11	2				1			2
Waltham, Mass.	31,011	7	2		12				2	1
Warren, Pa.	15,063		1		1		2			
Washington, D. C.	309,282	99	21		4		25		19	10
Washington, Pa.	22,076		2		89				2	
Waterbury, Conn.	89,291	11	5				2		4	1

¹ Pulmonary tuberculosis only.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Oct. 23, 1920—Continued.

City.	Popula- tion as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Watertown, Mass.	15,188	6	3		2					
Watertown, N. Y.	30,404						1			
Wausau, Wis.	19,666	6	1				1		1	
West Chester, Pa.	15,403		2				1			
Westfield, Mass.	18,769	4							3	1
West Hoboken, N. J.	44,386	1							1	
West New York, N. J.	19,613	5	3				1			
West 'range, N. J.	13,964	1	5							
Wheeling, W. Va.	43,657	17	5	1			5			
White Plains, N. Y.	23,331	5							2	
Wichita, Kans.	73,597	17	23	1			9			
Wilkes-Barre, Pa.	78,334		8		6		8		3	
Wilmington, Del.	95,369	33	5				9			4
Wilmington, N. C.	30,400	9	1							
Winchester, Mass.	10,812	3								
Winona, Minn.	18,583						3			
Winston-Salem, N. C.	33,139	13	4							
Winthrop, Mass.	13,165	6					2		1	
Woburn, Mass.	16,076	5								1
Worcester, Mass.	166,106	39	1	1	2		12		7	3
Yonkers, N. Y.	103,066	13	8		2		2		1	2
York, Pa.	52,770		6		1				3	
Youngstown, Ohio.	112,282	23	4				13			
Zanesville, Ohio.	31,320	3								1

1 Population Apr. 15, 1910.

FOREIGN AND INSULAR.

CHINA.

Cholera—Shanghai—September, 1920.

An outbreak of cholera, with a mortality of 33.3 per cent, was reported, September 29, 1920, at Shanghai, China. Two fatal cases were stated to have occurred in foreigners. The outbreak occurred in a missionary college.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been reported at Habana, as follows:

Disease.	Sept. 1-10, 1920.		Remain- ing under treat- ment Sept. 10, 1920.	Disease.	Sept. 1-10, 1920.		Remain- ing under treat- ment Sept. 10, 1920.
	New cases.	Deaths.			New cases.	Deaths.	
Cerebrospinal men- ingitis.....	.....	1	1	Measles.....	12	1	28
Diphtheria.....	1	.....	1	Scarlet fever.....	.....	.....	9
Leprosy.....	.....	.....	11	Smallpox.....	.....	.....	22
Malaria.....	30	1	148	Typhoid fever.....	19	6	93

¹ From the interior 30.

² From abroad 2.

³ From the interior 35.

Disease.	Sept. 11-20, 1920.		Remain- ing under treatment Sept. 20, 1920.	Disease.	Sept. 11-20, 1920.		Remain- ing under treatment Sept. 20, 1920.
	New cases.	Deaths.			New cases.	Deaths.	
Cerebrospinal men- ingitis.....	.....	1	.....	Malaria.....	41	.....	57
Diphtheria.....	1	.....	.....	Measles.....	9	3	20
Leprosy.....	.....	.....	11	Scarlet fever.....	1	.....	1
				Typhoid fever.....	30	4	101

¹ From the interior, 38.

² From the interior, 35.

Disease.	Sept. 21-30, 1920.		Remain- ing under treatment Sept. 30, 1920.	Disease.	Sept. 21-30, 1920.		Remain- ing under treatment Sept. 30, 1920.
	New cases.	Deaths.			New cases.	Deaths.	
Diphtheria.....	3	1	1	Measles.....	4	.....	2
Leprosy.....	.....	.....	11	Scarlet fever.....	1	.....	2
Malaria.....	53	.....	81	Typhoid fever.....	12	1	70

¹ From the interior, 55.

² From the interior, 23.

GALICIA.

Cholera—Buczacz.

Cholera was reported present at Buczacz, Galicia, October 18, 1920.

GREAT BRITAIN.**Anthrax—Bradford.**

The occurrence of a fatal case of anthrax at Bradford, England, was reported October 21, 1920. The case occurred in a wool handler.

JAPAN.**Cholera—Taiwan (Formosa).**

During the period August 22 to September 20, 1920, 548 cases of cholera with 378 fatalities were notified in the island of Taiwan (Formosa), Japan. (Population, Census of 1918, 3,669,687).

MEXICO.**Plague-Infected Rodent—Vera Cruz.**

A plague-infected rodent was reported found at Vera Cruz, Mexico, during the week ended November 7, 1920:

Yellow Fever (suspected)—Tampico.

On November 4, 1920, a fatal suspected case of yellow fever was reported at Tampico, Mexico. The origin of the case was believed to be Tuxpam, Mexico.

Yellow Fever—Tuxpam.

During the week ended October 27, 1920, 27 cases of yellow fever were reported at Tuxpam, Mexico, with a total of 112 cases with 59 fatalities from August 26 to October 27, 1920.

RUSSIA.**Cholera—Grodno—Vilna.**

Cholera was reported present, October 18, 1920, at Vilna and Grodno, Russia.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.**Reports Received During Week Ended Nov. 12, 1920.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Chungking.....	Sept. 12-18.....			Present.
Dairen.....	Sept. 29.....	4	1	
Nan'king.....	Sept. 12-25.....		4	
Shanghai.....	Sept. 29.....	6		2 foreigners, 4 Chinese.
Chosen:				
Chemulpo.....	Sept. 24-Oct. 7....	4	6	
Fusan.....	do.....	7	1	
Mokpo.....	Sept. 24-30.....	2	3	
Seoul.....	Sept. 24-Oct. 7....	29	69	
Galicia:				
Buczacz.....	Oct. 18.....			Present.
India:				
Bombay.....	Aug. 22-Sept. 11...	14	9	
Calcutta.....	Sept. 12-18.....	17	17	
Madras.....	Sept. 19-25.....	1		
Rangoon.....	Sept. 12-18.....	1		

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended Nov. 12, 1920—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Japan:				
Taiwan (Formosa).....	.....	.....	.....	Aug. 22-Sept. 20: Cases, 548; deaths, 378.
Philippine Islands:				
Manila.....	Sept. 19-25.....	2	.....
Provinces—				
Cagayan.....	Aug. 15-21.....	6	5	
Cavite.....	Sept. 5-11.....	1	1	
Pangasinan.....	Aug. 1-7.....	1	1	
Russia:				
Grodno.....	Oct. 18.....	.....	.....	Present.
Vilna.....	do.....	.....	.....	Do.
Siam:				
Bangkok.....	Aug. 8-Sept. 4.....	15	8	

PLAGUE.

Ceylon:				
Colombo.....	Sept. 12-18.....	1	3	
Chile:				
Antofagasta.....	Sept. 27-Oct. 9.....	2	.....
China:				
Amoy.....	Sept. 12-18.....	.....	1	
India:				
Bombay.....	Aug. 22-Sept. 11.....	21	14	Aug. 15-Sept. 18, 1920: Cases, 13,461; deaths, 9,570.
Karachi.....	Sept. 19-25.....	9	9	
Madras Presidency.....	Sept. 19-25.....	303	221	
Rangoon.....	Aug. 8-21.....	76	57	
Java:				
West Java.....	.....	.....	.....	Sept. 3-9, 1920: Cases, 6; deaths, 6.
Batavia.....	Sept. 3-9.....	6	6	
Siam:				
Bangkok.....	Aug. 22-28.....	1	1	

SMALLPOX.

Brazil:				
Pernambuco.....	Aug. 16-Sept. 19.....	98	2	
Canada:				
Ontario—				
Hamilton.....	Oct. 24-30.....	1	.....
North Bay.....	Oct. 17-23.....	2	.....
Ottawa.....	Oct. 24-30.....	42	.....
Saskatchewan—				
Regina.....	Oct. 17-23.....	1	.....
Saskatoon.....	do.....	1	.....
Ceylon:				
Colombo.....	Sept. 12-18.....	1	3	
China:				
Amoy.....	do.....	.....	1	
Poochow.....	Sept. 19-25.....	.....	.....	Present.
Nanking.....	Sept. 12-25.....	.....	.....	Do.
Egypt:				
Alexandria.....	Sept. 24-30.....	1	1	
Cairo.....	July 30-Aug. 5.....	1	.....
Great Britain:				
Glasgow.....	Oct. 3-16.....	2	2	
India:				
Bombay.....	Aug. 23-Sept. 4.....	4	2	
Caleutta.....	Sept. 12-18.....	1	.....
Madras.....	Sept. 19-25.....	4	3	
Rangoon.....	Aug. 8-21.....	5	2	
Italy:				
Palermo.....	Sept. 17-30.....	95	37	
Trieste.....	Sept. 25-Oct. 2.....	16	5	
Java:				
West Java.....	.....	.....	.....	Sept. 3-9, 1920: Cases, 7; deaths, 2.
Batavia.....	Sept. 3-9.....	1	.....

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received During Week Ended Nov. 12, 1920—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Portuguese East Africa.....				Sept. 12-18, 1920: Present in interior.
Inhambane.....	Sept. 12-18.....	1		
Lourenco Marques.....	do.....	2		June 1-Aug. 31, 1920: Deaths, 1.
Russia:				
Riga.....	Sept. 7-23.....	2		
Spain:				
Barcelona.....	Sept. 16-29.....		4	
Corunna.....	Oct. 15-21.....	1	1	
Sweden:				
Stockholm.....	Sept. 19-25.....	2		
Tunis:				
Tunis.....	Oct. 4-10.....		2	

TYPHUS FEVER.

Belgium:				
Ghent.....	Oct. 3-9.....	3		
China:				
Antung.....	Sept. 19-Oct. 3.....	20	4	
Egypt:				
Alexandria.....	Oct. 1-7.....	1	1	
Great Britain:				
Dublin.....	Oct. 10-16.....	6		
Portugal:				
Oporto.....	Sept. 26-Oct. 2.....	2		
Russia:				
Latvia—				
Riga.....	Sept. 7-23.....	25		
Turkey:				
Constantinople.....	Oct. 3-9.....	3		

YELLOW FEVER.

Mexico:				
Tampico.....	Nov. 4.....	1	1	Suspected.
Tuxpam.....	Oct. 21-27.....	27		Aug. 26—Oct. 27, 1920: Cases, 112;
Veracruz.....	Oct. 25-31.....	8	15	deaths, 59.

Reports Received from June 26 to Nov. 5, 1920.**CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Rio de Janeiro.....	June 27-July 3.....		1	
China:				
Amoy.....	June 20-Aug. 14.....		12	
Antung.....	Aug. 9-15.....	1	1	
Canton.....	July 1-Aug. 31.....	5	4	
Changsha.....	Aug. 22-Sept. 18.....	137	50	Aug. 15-21: Present.
Chuneking.....	May 16-21.....		1,319	
Do.....	June 6-Sept. 11.....		5,322	
Foochow.....	July 11-24.....			Present.
Hankow.....	July 4-17.....	12	5	
Harbin.....				Year 1919: Cases, 603. On East-
Hongkong.....	Aug. 8-14.....	1	1	ern Chinese R. R. line. At
				other stations, same line, 190
				cases.
Nanking.....	Aug. 30.....			Several cases reported at Nan-
Shanghai.....	Aug. 2-29.....	1	6	king University. Reported
				prevalent among Chinese.
Chosen (Korea):				Sept. 8, 1920: Cases, 13,000;
Chemulpo.....	Aug. 1-Sept. 23.....	20	15	deaths, 5,000 (estimated). Aug.
Chinnampo.....	Aug. 1-26.....	34	23	1-Sept. 23, 1920: Cases, 22,435;
Fusan.....	Aug. 1-Sept. 23.....	677	492	deaths, 11,003.
Gensan.....	Aug. 27-Sept. 2.....	1		
Mokpo.....	Aug. 1-Sept. 9.....	26	15	
Seoul.....	Aug. 1-Sept. 23.....	1,003	712	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Greece:				
Patras.....	July 26-Aug. 1.....			Present in surrounding country.
Zante.....	Aug. 2-8.....			Present.
India.....				Apr. 11-May 22, 1920: Deaths,
Bombay.....	May 2-June 26.....	85	36	7,549. May 30-June 26, 1920:
Do.....	June 27-Aug. 21.....	89	57	Deaths, 3,710. June 27-July 10,
Calcutta.....	May 2-June 24.....	439	423	1920: Deaths, 1,711.
Do.....	July 18-Sept. 11.....	158	151	
Madras.....	May 2-June 26.....	20	13	
Do.....	July 11-Sept. 18.....	10	1	
Rangoon.....	June 27-July 4.....	21	16	July 1-31, 1920; Cases, 18; deaths
Indo-China.....				16.
Saigon.....	Apr. 26-June 13.....	130	94	Jan. 1-31, 1920; Cases, 40; deaths,
Do.....	July 26-Sept. 5.....	9	5	24. Feb. 1-29, 1920; Cases, 25;
Japan:				deaths, 15. Mar. 1-31, 1920;
Kobe.....	June 14-27.....	36	24	Cases, 32; deaths, 30.
Do.....	June 28-Sept. 23.....	408	223	Kobe, June 6-13, 34 cases. Moji,
Nagasaki.....	June 21-27.....	7		June 6-12, 10 cases. Kocpi,
Do.....	June 28-July 18.....	34	13	June 6-12, 1 case. Hiroshima,
Osaka.....	do.....			June 6-12, 6 cases.
Taiwan Island.....	May 22-June 20.....	60	33	
Do.....	July 11-Aug. 20.....	645	62	
Java:				
West Java—				
Batavia.....	Apr. 30-June 3.....	6	2	June 4-17; Present.
Do.....	June 25-Aug. 12.....	3		
Philippine Islands:				
Manila.....	May 9-June 26.....	5	1	
Do.....	June 27-July 10.....	3		
Provinces.....				May 9-June 26, 1920; Cases, 16;
Albay.....	May 9-15.....	2	1	deaths, 12. June 27-July 17,
Batangas.....	June 27-July 3.....	1		1920; Cases, 63; deaths, 31.
Bohol.....	do.....	1	1	July 25-31; Cases, 57; deaths, 48.
Cagayan.....	May 9-June 26.....	11	19	
Do.....	June 27-July 10.....	35	9	
Iloilo.....	June 27-July 17.....	3		
Isabela.....	July 11-31.....	13	14	
Laguna.....	July 4-10.....	8		
Misamis.....	July 11-17.....	4	2	
Nueva Viscaya.....	July 25-31.....	49	42	
Pangasinan.....	July 4-17.....	6	4	
Poland:				
Warsaw.....	Oct. 28.....	1	1	Case occurred in employee on
Russia.....				river boat plying between
Sebastopol (district).....	June 20.....			Warsaw and Danzig.
Simferopol.....				Reported prevalent in southern
				Russia, June 4, 1920.
Vilna.....	Sept. 28.....	40		Reported increasing.
Siam:				Jan.-June, 1920; Cases, 1,262;
Bangkok.....	Apr. 25-June 26.....	542	343	deaths, 584. South Russia,
Do.....	June 26-Aug. 7.....	46	18	Government of Tauride.
Straits Settlements:				Province of Lithuania.
Singapore.....	July 18-Sept. 14.....	24	23	
Sumatra:				
Medan.....	Aug. 20-Sept. 3.....	1	1	On local steamship. From Sin-
Turkey:				gapore.
Amassia.....	Dec. 24.....	1		Asiatic Turkey.
Kaiseri.....	Dec. 22.....	1		Do.
Karasi.....	Jan. 3.....	1		Do.
Mamuret-ul-Aziz.....	Dec. 31.....	1	1	Do.
Panderma.....	Dec.-Jan.....	16	6	
Rodosto.....	Dec. 29.....	1		European Turkey.
Smyrna.....	Dec. 22.....	3	2	Asiatic Turkey.
On vessel:				
S. S. Kekettient.....	Aug. 2.....	1		U. S. S.; at Shanghai.
Steamship.....	Aug. 20-Sept. 3.....	1	1	At Medan, Island of Sumatra.
				From Singapore.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received from June 26 to Nov. 5, 1920—Continued.****PLAGUE.**

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers.....				Sept. 1-30, 1920: Cases, 3; deaths, 1.
Azores:				
St. Michaels.....	Oct. 4-20.....	35	12	Oct. 4, 1920: 5 suspect cases isolated vicinity of Ponta Delgada. Oct. 1-31, 1920: Cases, 76; deaths, 27.
Ponta Delgada.....	Oct. 1-26.....	2		
Brazil:				
Bahia.....	Apr. 25-May 22.....	10	10	
Do.....	June 27-Oct. 28.....	10	5	
Pernambuco.....	May 3-9.....	1	1	
Do.....	June 28-Aug. 15.....	32	16	
Porto Alegre.....	June 27-Aug. 21.....		2	
British East Africa:				
Kisumu.....	Apr. 25-June 26.....	14	12	Apr. 1-30, 1920: Cases, 22; deaths, 9.
Do.....	July 11-Sept. 4.....	10	5	Present.
Mombasa.....	Apr. 25-June 26.....	104	39	
Do.....	June 27-Aug. 28.....	113	72	
Nairobi.....	Apr. 25-June 10.....	14	8	
Ceylon:				
Colombo.....	May 25-June 12.....	7	2	
Do.....	June 27-Sept. 4.....	18	18	
Chile.....				Mar. 1-May 31, 1920: Cases 15; deaths, 2. Plague reported in Departments of Tacna and Tarata.
Antofagasta.....	May 17-June 20.....	5		Mar. 1-May 31, 1920: Cases, 7; deaths, 1.
Do.....	July 5-11.....	1		
Iquique.....	Mar. 1-May 31.....	8	1	
China:				
Amoy.....	June 20-Sept. 11.....		7	
Hongkong.....	Apr. 4-June 26.....	90	70	
Do.....	June 27-Aug. 21.....	26	23	
Ecuador:				
Guayaquil.....	Aug. 16-Sept. 30.....	9	1	
Egypt:				
Cities—				Jan. 1-Sept. 30, 1920: Cases, 420; deaths, 245.
Alexandria.....	June 18-Aug. 12.....	10	7	
Port Said.....	Aug. 2-Sept. 26.....	3		
Suez.....	May 13-June 8.....	12	6	3 cases pneumonic.
Do.....	July 3-Aug. 4.....	4	3	
Provinces—				
Assiout.....	May 15-June 5.....	7	4	
Do.....	July 2-14.....	6		
Beni-Souef.....	July 7-10.....	2	1	
Fayoum.....	June 5.....	1		
Garbieh.....	do.....	1		
Do.....	July 1-Sept. 28.....	19	14	
Kenah.....	May 18.....	1		
Mariut.....	May 18-June 8.....	19	22	
Do.....	July 3-9.....	1		
Minieh.....	May 15.....	2	1	Septicemic.
Do.....	July 13.....	1		
Fiume.....	Sept. 21.....	4	2	
Great Britain:				
Liverpool.....	June 20-26.....	1	1	
Greece:				
Athens.....	Aug. 19-Oct. 14.....	3	2	
Chios.....	Oct. 14.....	1		
Dante.....	July 22.....	2		
Kavalla.....	July 6-Aug. 21.....	3		
Nauplia.....	Aug. 21.....	2		Approximately 20 cases Sept. 9.
Piræus.....	June 29-Sept. 20.....	12	1	
Saloniki.....	Sept. 25-Oct. 8.....	3		
Zante.....				
India:				
Bombay.....	Apr. 18-June 26.....	170	135	Apr. 18-June 26, 1920: Cases, 12,476; deaths, 9,961. June 27-
Do.....	June 27-Aug. 21.....	34	31	Sept. 4, 1920: Cases, 13,932; deaths, 11,270.
Calcutta.....	May 2-June 12.....	26	19	
Karachi.....	May 9-Sept. 11.....	67	60	
Madras Presidency.....	May 9-Sept. 18.....	6,198	4,509	
Rangoon.....	Apr. 25-June 26.....	120		
Do.....	June 27-Aug. 7.....	157	136	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Indo-China.....				Jan. 1-31, 1920: Cases, 42; deaths, 40. Feb. 1-29, 1920: Cases, 41; deaths, 36. Mar. 1-31, 1920: Cases, 79; deaths, 70.
Saigon.....	May 10-June 13.....	9	2	
Do.....	July 26-Aug. 15.....	5	4	
Italy:				
Catania.....	June 22-July 3.....	3	2	
Java:				Apr. 23-May 5, 1920: Cases, 7; deaths, 7. Apr. 15-June 16, 1920: Cases, 8; deaths, 8. Aug. 5-25, 1920: Cases, 4; deaths, 4. Surabaya Residency.
East Java.....				
West Java.....				
Batavia.....	July 22-Aug. 8.....	9	9	
Mesopotamia:				
Bagdad.....	June 1-30.....	6	3	
Mexico:				
Tampico.....	July 26-Sept. 27.....	4	3	
Vera Cruz.....	June 14-20.....	11	1	May 29-July 14, 1920: Cases, 49, deaths, 29. Corrected statement: From outbreak in May to July 20, 1920—cases, 58; deaths, 36.
Do.....	July 18-24.....	2	2	
Peru.....				Mar. 1-31, 1920: Cases, 46; deaths, 29. Apr. 1-30, 1920: Cases, 36; deaths, 13. In coastal departments.
Callao.....	Mar. 1-31.....	6	3	
Do.....	Apr. 1-30.....	9	4	
Lima (city).....	Mar. 1-31.....	5	3	
Do.....	Apr. 1-30.....	4	4	
Lima (country).....	Mar. 1-31.....	1	1	
Do.....	Apr. 1-30.....	1		
Mollendo.....	Mar. 1-31.....	13	9	
Paita.....	do.....	5	2	
Do.....	Apr. 1-30.....	2		
Salaverry.....	Mar. 1-31.....	4	3	
Do.....	Apr. 1-30.....	1		
San Pedro.....	do.....	6	1	
Trujillo-Salaverry.....	May 31-June 29.....	3	2	
Do.....	Aug. 30-Sept. 5.....	1	11	
Russia:				
Batum.....	Sept. 28.....			Prevalent.
Siam:				
Bangkok.....	Apr. 25-June 5.....	8	5	
Do.....	June 28-July 17.....	5	2	
Straits Settlements:				
Singapore.....	Apr. 25-June 19.....	14	13	
Do.....	July 11-Aug. 7.....	3	3	
Syria:				
Beirut.....	June 30.....			Present.
Turkey:				
Constantinople.....	July 25-Aug. 21.....	7	6	
Uruguay:				
Montevideo.....	June 1-30.....	1	1	

SMALLPOX.

Algeria:				
Departments—				
Algiers.....	May 11-Aug. 31.....	51		City of Algiers, Apr. 1-30, 1920: One case. July 1-Aug. 31, 1920: Cases, 4; deaths, 2.
Constantine.....	June 1-Aug. 31.....	18		
Cran.....	May 11-Aug. 31.....	168		
Austria.....				May 30-June 26, 1920: Cases, 27. June 27-July 10, 1920: Cases, 22.
Vienna.....	May 30-June 26.....	1		
Azores:				
Ponta Delgada.....	July 17-Aug. 20.....	7		
St. Michaels.....	Aug. 21-27.....	1		From Madeira.
Bolivar:				
La Paz.....	May 2-June 30.....	10	8	
Do.....	July 1-Aug. 31.....	11	5	
Brazil:				
Bahia.....	Apr. 25-June 26.....	5	5	
Do.....	June 27-Aug. 21.....	20	2	
Fernambuco.....	Mar. 29-June 27.....	114	3	
Do.....	June 30-Aug. 15.....	112	2	
Rio de Janeiro.....	Apr. 11-June 26.....	431	6	
Do.....	June 27-Aug. 21.....	45	9	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil—Continued.				
Santos.....	Mar. 24-28.....	1		
Sao Paulo.....	June 21-27.....		1	
Do.....	June 27-Aug. 8.....		2	
British East Africa.....				Mar. 1-31, 1920: Cases, 107. Apr. 1-30, 1920: Cases, 69. Reported by native inspectors.
Mombasa.....	May 2-22.....	2	1	
Do.....	July 11-17.....	3		
Nairobi.....	May 23-June 26.....	11	1	
Do.....	Aug. 1-21.....	5		
Bulgaria:				
Sofia.....	July 11-17.....	1		
Canada:				
Alberta—				
Calgary.....	June 3-9.....	1		
Do.....	July 4-Oct. 9.....	6		
British Columbia—				
Vancouver.....	May 16-Aug. 28.....	4		
Manitoba—				
Winnipeg.....	May 29-June 5.....	3		
Do.....	Aug. 8-21.....	2		
New Brunswick—				
Bonaventura and Gaspé Counties.....	Aug. 1-31.....	1		
Carleton County.....	Sept. 19-25.....	1		
Gloucester County.....	May 31-June 26.....	5		
Do.....	Sept. 19-Oct. 9.....	3		
Queens County.....	July 4-Aug. 21.....	7		
Restigouche County.....				Sept. 26-Oct. 2, 1920: Cases, 1.
Campbellton.....	July 1-31.....	7		
Nova Scotia—				
Halifax.....	do.....	2		
Sydney.....	May 31-June 26.....	2		
Ontario—				
Cornwall.....	June 25-30.....	2		
Fort William and Port Arthur.....	July 11-Oct. 2.....	4		
Hamilton.....	June 13-Oct. 16.....	8		
Kingston.....	May 31-June 19.....	4		
North Bay.....	June 23-2.....	1		
Do.....	July 11-Oct. 9.....	6		
Ottawa.....	June 6-26.....	32		
Do.....	June 27-Oct. 9.....	64		
Peterborough.....	Apr. 18-July 31.....	33	1	
Prescott.....	July 11-17.....	1		
Do.....	Aug. 1-14.....			Present at Cardinal and Brockville.
Toronto.....	June 6-19.....	13		
Do.....	June 26-Sept. 25.....	26		
Windsor.....	Aug. 22-Sept. 11.....	5		
Prince Edward Island—				
Charlotte Town.....	Aug. 12-Oct. 13.....	2		
Quebec—				
Montreal.....	June 13-19.....	1		
Do.....	July 4-Aug. 7.....	4		
Quebec.....	June 27-Oct. 2.....	9		
Saskatchewan—				
Moose Jaw.....	June 26-30.....	6		
Do.....	July 25-Sept. 25.....	3		
Regina.....	June 2-30.....	1		
Do.....	Oct. 3-9.....	1		
Saskatoon.....	Sept. 5-Oct. 16.....	7		
Ceylon:				
Colombo.....	May 9-June 5.....	2		
Do.....	Aug. 29-Sept. 4.....	8		
Chile:				
Antofagasta.....	May 17-23.....			1 case in interior.
China:				
Amoy.....	May 2-Sept. 11.....	4	14	
Antung.....	May 9-June 13.....	3	3	
Do.....	June 21-27.....	1		
Chungking.....	May 2-June 9.....			Present.
Do.....	July 11-Sept. 11.....			Do.
Foochow.....	May 9-29.....			Do.
Do.....	July 26-Sept. 18.....			Do.
Hankow.....	June 30-26.....	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks	
China—Continued.					
Harbin.....	Year, 1919: Cases, 79. On Eastern Chinese R. R. line. At other stations, 109 cases. Present. Do. Do.	
Hongkong.....	Apr. 4-June 26....	19	15		
Do.....	June 27-July 17....	2	2		
Mukden.....	July 19-Aug. 21....	.....	.....
Nanking.....	May 9-June 5.....	.....	.....
Do.....	July 4-Sept. 11....	.....	.....
Tientsin.....	May 25-31.....	2	.....	
Do.....	June 16-29.....	2	Epidemic. Present.	
Tsinanfu.....	May 9-15.....	1	.....	
Chosen (Korea):					
Chemulpo.....	Mar. 1-June 30....	69	40		
Do.....	July 1-31.....	18	8		
Fusan.....	Mar. 1-June 30....	24	6		
Do.....	July 1-31.....	1	1		
Seoul.....	Mar. 1-June 30....	358	86		
Do.....	July 1-31.....	15	6	From steamship Frank Hennis from Jamaica. Arrived Santiago June 30, 1920. In vicinity, at Aguacate, Aug. 1-7, 1920: Cases, 12. August, 1919: Cases, 242; deaths, 54.	
Colombia:					
Barranquilla.....	May 13-July 3.....	.....	.....
Santa Marta.....	May 31-Oct. 16....	.....	.....
Cuba:					
Antilla.....	Aug. 24-Sept. 13....	2	.....	
Habana.....	July 4.....	1	.....	
Matanzas.....	Aug. 15-21.....	1	1	Feb. 22-June 12, 1920: Cases, 720. July 11-24, 1920: Cases, 26; deaths, 6. Additional cases, June 13-July 10, 1920, 24; deaths, 2.	
Cyprus.....					
Czechoslovakia:					
Moravia.....	Feb. 1-2.....	68	.....	
Danzig.....	June 20-July 17....	9	2		
Egypt:					
Alexandria.....	May 14-June 29....	53	19		
Do.....	June 25-Sept. 23....	12	3		
Cairo.....	Apr. 2-June 24....	62	23		
Do.....	July 2-8.....	1	.....	
Port Said.....	Apr. 2-June 24....	22	8		
Do.....	July 2-15.....	2	1	Apr. 11-May 22, 1920: Deaths, 7,743. May 30-June 26, 1920: Deaths, 3,864. May 9-15, 1920: Cases, 26; deaths, 11.	
France:					
Brest.....	May 15-31.....	1	.....	
Cette.....	June 24-30.....	.....	1	
Nice.....	June 1-30.....	.....	1	
Paris.....	May 1-10.....	3	.....	
Germany.....					
Great Britain:					
Edinburgh.....	Aug. 29-Sept. 4....	7	1		
Glasgow.....	May 25-June 26....	136	22		
Do.....	July 4-Oct. 2.....	169	46		
Liverpool.....	July 18-Sept. 11....	2	.....	
London.....	June 13-July 19....	14	.....	
Manchester.....	Aug. 22-28.....	5	July 1-31, 1920: Cases, 22; deaths, 4.	
Greece:					
Saloniki.....	May 31-June 27....	4	1		
Do.....	July 25-Aug. 15....	1	1		
Haiti:					
Port au Prince.....	Sept. 22.....	5	.....	
India.....					
Bombay.....	Apr. 25-June 26....	103	45		
Do.....	June 27-Aug. 14....	45	9		
Calcutta.....	May 2-June 12....	101	93		
Do.....	July 18-Aug. 21....	8	8		
Karachi.....	May 9-June 26....	15	12		
Do.....	June 27-July 10....	7	4		
Madras.....	May 9-June 26....	27	15		
Do.....	June 27-Oct. 4....	38	12		
Rangoon.....	Apr. 25-June 26....	35	14		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.*

Reports Received from June 26 to Nov. 5, 1920—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Indo-China:				
Saigon.....	May 10-June 13.....	12	3	Jan. 1-31, 1920: Cases, 410; deaths, 101. Feb. 1-29, 1920: Cases, 625; deaths, 119. Mar. 1-31, 1920: Cases, 782; deaths, 114.
Do.....	Aug. 3-Sept. 5.....	1	1	
Italy:				
Catania.....	July 12-Oct. 3.....	91	.....	City and Province. Sept. 13-26 69 cases in district.
Genoa.....	May 17-23.....	12	.....	In Province.
Do.....	June 14-27.....	20	.....
Do.....	June 28-July 4.....	3	.....
Messina.....	May 10-June 27.....	7	1	Province, May 10-June 27: Cases 168; deaths, 27.
Do.....	June 28-Sept. 26.....	13	3	Province: Cases, 35; deaths, 3.
Milan.....	Mar. 1-May 31.....	3	5	
Naples.....	May 23-June 20.....	7	3	
Palermo.....	May 11-Sept. 16.....	166	29	
Turin.....	June 28-July 4.....	1	.....
Jamaica:				
Kingston.....	July 22.....	.....	.....	Present.
Japan:				
Kobe.....	May 9-June 27.....	10	5	
Do.....	June 28-July 18.....	7	2	
Taiwan Island.....	May 1-June 30.....	40	11	
Do.....	June 31-July 20.....	14	8	
Tokyo.....	Apr. 21-May 10.....	5	4	
Java:				
West Java.....	Apr. 16-June 17.....	94	26	Apr. 16-June 24, 1920: Cases, 56; deaths, 10. June 25-Sept. 2, 1920: Cases, 68; deaths, 15.
Batavia.....	July 9-Sept. 2.....	1	1	Feb. 1-June 23, 1920: Cases, 2,619; deaths, 561.
Do.....	.....	.....	.....
Jugo-Slavia:				
Madeira:				
Funchal.....	June 20-26.....	.....	2	Sept. 12-18, 1 case.
Do.....	July 18-24.....	.....	3	
Malta.....	May 1-June 30.....	.....	.....
Manchuria:				
Mukden.....	May 2-8.....	.....	.....
Mesopotamia:				
Bagdad.....	July 1-31.....	1	.....
Mexico:				
Ciudad Juarez.....	Aug. 2-8.....	1	.....
Guadalupe.....	May 1-31.....	1	.....
Do.....	July 1-31.....	3	.....
Laredo.....	July 30.....	2	.....
Maratlan.....	May 19-25.....	.....	1	
Salina Cruz.....	June 1-30.....	5	3	
Do.....	Aug. 1-31.....	1	1	
San Luis Potosi.....	May 31-June 6.....	.....	1	
Do.....	June 28-Oct. 16.....	.....	11	
Tampico.....	July 1-31.....	.....	5	
Newfoundland:				
Broad Cove.....	Sept. 4-10.....	1	.....	Reported at 2 other localities. July 3-16: Present at 4 localities.
Ladle Cove.....	Sept. 11-17.....	6	.....
St. John's.....	June 5-11.....	3	.....
Shoal Harbor.....	July 10-16.....	7	.....
New Zealand:				
Dunedin.....	Aug. 10-23.....	7	.....
Poland.....				
Minsk District.....	Jan. 1-31.....	1,052	228	Jan. 1-31, 1920: Cases, 1,895; deaths, 301.
Porto Rico:				
Caguas.....	Aug. 9-15.....	1	.....
Portugal:				
Lisbon.....	May 16-June 28.....	.....	8	
Do.....	June 27-Oct. 9.....	.....	20	
Russia:				
Riga.....	Aug. 1-7.....	1	.....	May, 1920: Cases, 5. June, 1920: Cases, 7.
Vladivostok.....	Jan. 1-June 30.....	232	78	
Do.....	July 1-31.....	2	.....
Spain:				
Barcelona.....	May 19-June 12.....	.....	4	Aug. 1-31, 1920: Deaths, 3. Present.
Do.....	June 18-Sept. 8.....	.....	16	
Corunna.....	July 16-29.....	.....	1	
Malaga.....	.....	.....	.....
Orense, Province.....	Sept. 6.....	.....	.....
Valencia.....	May 23-June 26.....	15	3	
Do.....	July 4-Oct. 2.....	11	3	
Vigo.....	May 31-June 26.....	.....	4	
Do.....	July 18-Oct. 2.....	.....	10	
Do.....	.....	.....	.....

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Switzerland:				
Geneva.....	May 9-15.....	7		
Syria:				
Aleppo.....	Aug. 29-Sept. 4.....			In city and in Armenian orphanage.
Tunis:				
Tunis.....	May 25-June 27.....	6	5	
Do.....	June 28-Sept. 19.....	38	10	
Turkey:				
Constantinople.....	May 16-June 19.....	7		
Do.....	June 20-Aug. 28.....	12		
Union of South Africa:				
Johannesburg.....	May 1-31.....	23		
Do.....	July 1-31.....	15		
On vessel:				
S. S. Henry R. Mallory.....	Oct. 2.....	1		At Habana from Spanish ports. Vessel left Vigo, Spain, Sept. 19.

TYPHUS FEVER.

Algeria:				
Departments—				
Algiers.....	May 11-Aug. 31.....	44		
Constantine.....	May 21-Aug. 31.....	20		
Oran.....	May 11-Aug. 31.....	352		
Austria.....				Feb. 15-June 26, 1920: Cases, 67.
Vienna.....	Feb. 15-June 26.....	65		
Belgium:				
Ghent.....	Sept. 11-25.....	6	1	
Bolivia:				
La Paz.....	May 2-June 30.....		17	
Do.....	July 1-31.....		12	
Brazil:				
Ceara.....	Apr. 25-June 12.....		4	
Do.....	July 11-24.....		2	
Bulgaria:				
Sofia.....	June 20-25.....	2		
Chile.....				Mar. 1-June 30, 1920: Cases, 1,338, deaths, 244. Present.
Antofagasta.....	July 5-11.....			
Caleta Coloso.....	May 10-16.....		2	
Concepcion.....	Mar. 8-June 28.....	31	39	
Do.....	June 29-Sept. 20.....		13	
Couquimbo.....	Aug. 8-15.....	1		
Santiago.....	Mar. 1-June 30.....	470	86	Sept. 10: Cases, 186.
Valparaiso.....	May 2-Sept. 24.....		99	
China:				
Antung.....	July 12-Sept. 5.....	13		Report week ended July 31, 1920 not received.
Eastern Chinese Railway...	Aug. 9-Sept. 28.....	5		At stations on line.
Harbin.....				On Eastern Chinese Railroad Line. Year 1919: Cases, 301. At other stations on line, 789 cases.
Chosen (Korea):				
Chemulpo.....	June 1-30.....	3		
Seoul.....	Mar. 1-Apr. 30.....	4	1	
Czechoslovakia.....				Feb. 1-28, 1920: Cases, 88; deaths, 7.
Leipnik.....	Feb. 22-28.....	1		Quarantine station.
Danzig.....	June 20-26.....	1		Feb. 27-Mar. 27, 1920: Cases, 16.
Do.....	July 25-31.....	1	1	
Egypt:				
Alexandria.....	May 7-June 24.....	338	86	
Do.....	June 25-Sept. 9.....	141	62	
Cairo.....	Apr. 2-June 24.....	867	370	
Do.....	July 9-22.....	68	41	
Port Said.....	Apr. 9-June 24.....	112	53	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany.....				Feb. 22-Mar. 27, 1920: Cases, 23. Among troops, 4; among persons from Poland, 8. Mar. 28-June 26, 1920: Cases 96. July 11-24, 1920: Cases, 2. Additional cases, June 18-July 10, 16.
Great Britain:				
Dublin.....	May 23-June 19....	3	1	
Do.....	Oct. 16-22.....	17		
Dundee.....	July 4-10.....	1		
Glasgow.....	May 30-June 5....		1	
Queenstown.....	Aug. 1-7.....	1		
Greece:				
Athens.....	June 27-July 21..		5	
Drama.....	July 12-18.....	1		
Patras.....	June 29-July 4....		1	
Piræus.....	June 29-July 5....		1	
Saloniki.....	Apr. 12-27.....	384	42	
Do.....	June 28-Sept. 12..	128	54	
Guatemala:				
Guatemala City.....	Aug. 9-15.....		1	
Hungary.....				Jan. 19-May 30, 1920: Cases, 54.
Budapest.....	Jan. 10-May 23....	27		
Italy:				
Catania.....	July 10-17.....	3		
Trieste.....	May 16-22.....	5		
Do.....	June 13-Sept. 21..	159	13	
Japan:				
Kobe.....	Aug. 17-23.....	7		
Nagasaki.....	May 25-June 27....	2	1	
Do.....	Sept. 13-19.....	1		
Java:				
East Java—				
Surabaya.....	June 10-16.....	1		
West Java—				
Batavia.....	May 28-June 30....	5	1	
Jugo-Slavia.....				Feb. 1-June 23, 1920: Cases, 691; deaths, 92.
Mesopotamia:				
Bagdad.....	Aug. 1-31.....	1		
Mexico:				
Chihuahua.....	May 31-June 6....		1	
Nogales.....	Aug. 9-14.....	2		
San Luis Potosi.....	June 8-July 8.....			
Do.....	July 2-Aug. 15....		2	
Poland.....				Present. Sept. 19: Present. Jan. 1-Mar. 31, 1920: Cases, 87,910; deaths, 19,733.
Warsaw.....				Jan. 1-Feb. 29, 1920: Cases, 911; deaths, 117.
Serbia.....				Mar. 14-Apr. 10, 1920: Cases, 181; deaths, 23.
Portugal:				
Oporto.....	Apr. 4-June 24....	15	6	
Do.....	Aug. 1-14.....	3		
Russia:				
Riga.....	June 25-Sept. 7....	43		
Simferopol.....				Jan.-June, 1920: Cases, 3,955; deaths, 500.
Vilna.....	Sept. 28.....	35		
Vladivostok.....	May 1-21.....	22	2	
Do.....	July 1-Aug. 31....	36	4	Jan. 1-Apr. 30, 1920: Cases, 1,264; deaths, 144.
Spain:				
Barcelona.....	July 9-15.....		1	
Madrid.....	June 1-30.....		1	
Switzerland:				
Geneva.....	June 28-July 4....	1		
Tunis:				
Tunis.....	May 24-June 27....	36	18	
Do.....	July 6-Aug. 31....	1	1	
Turkey:				
Constantinople.....	May 16-June 12....	27		
Do.....	June 19-Sept. 18..	18		
Venezuela:				
Maracaibo.....	July 21-27.....		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Nov. 5, 1920—Continued.

YELLOW FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	May 23-June 19...	1		
Colombia:				
Buenaventura.....	June 3.....	1	1	
Guatemala:				
Los Amates.....	Aug. 5-Sept. 1.....	10	3	Oct. 25, 1920: Present. Aug. 17: Present at several localities Aug. 5-23, 1920: Cases, 8; deaths, 6.
Quirigua.....	Aug. 9-15.....			Present.
Virginia.....	Sept. 10.....	1		Station on railway from Puerto Barrios to Guatemala City, 45 miles from Puerto Barrios.
Mexico:				
Culiacan.....	Oct. 16.....			Present.
Empalme.....	Oct. 12.....	1	1	
Guanajuato.....	do.....		1	Previously reported, 2 deaths; later information shows 1 death.
Mazatlan.....	Oct. 13.....	1	1	
Progreso.....	July 30.....	1		
Do.....	Aug. 4-18.....	4	2	July 30-Aug. 18, 1920: Cases, 5; deaths, 3.
Puerto Mexico.....	Aug. 21-27.....	1	1	Case arrived Aug. 23 on s. s. Melchor Ocampo, from Progreso. Previously reported P. H. R., Sept. 10, 1920.
San Blas.....	Sept. 13.....	1		
Tampico.....	Sept. 17.....	1		Stated to have arrived from Tuxpam.
Do.....	Sept. 21-27.....	2	2	
Tuxpam.....	Sept. 1.....		2	Aug. 26-Sept. 1, 1920: Cases, 5; deaths, 5.
Vera Cruz.....	June 22.....		2	
Do.....	July 19-Oct. 17.....	68	46	
Yucatan, State— Campeche.....	Oct. 13.....	1	1	In sailor from s. s. Yumuri. The vessel left Vera Cruz Oct. 1 for Campeche and New Orleans.
Huacab.....	Sept. 8.....	8		In interior.
Huamantla.....	Sept. 8-Oct. 11.....	2	1	Do.
Sotuta.....	Sept. 8.....	1	1	Do.
Peru:				
Callao.....	Apr. 1-30.....	1		Mar. 1-31, 1920: Cases, 228; Apr. 1-20, 1920: Cases, 64.
Catacos.....	Mar. 1-31.....	14		At quarantine station. From s. s. Huallaga.
Do.....	Apr. 1-30.....	2		
La Huaca.....	Mar. 1-31.....	9		
Do.....	Apr. 1-30.....	5		
Morropón.....	do.....	37		
Munusilla.....	Mar. 1-31.....	12		
Paita.....	do.....	81		
Do.....	Apr. 1-30.....	11		
Piura.....	Mar. 1-31.....	1		
Do.....	Apr. 1-30.....	4		
Salitral.....	Mar. 1-31.....	2		
Sullana.....	do.....	9		
Do.....	Apr. 1-30.....	1		
Salvador:				
Armenia.....	June 29-26.....	1	1	Sept. 12-18, 1920: 1 case; Aug. 22-Oct. 11, 1920: Cases, 3; deaths, 1.
San Salvador.....	Aug. 1-21.....	6	2	Fatal cases were in Europeans.
Sonoma.....	May 22-June 24.....	49	17	
On vessels:				
S. S. Haraldshaug.....	Sept. 28.....	1		At Pensacola, Fla. From Puerto Barrios, Tampico, and Vera Cruz.
S. S. Soestdijk.....	Sept. 11.....	1	1	At Quarantine, La.
S. S. Yumuri.....	Oct. 13.....	1	1	At Campeche. Vessel left Vera Cruz Oct. 1, 1920.